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ABSTRACTS

I. ORGANIC FIBERS

INSULATING YARNS. A. Brookes. *Textile Mfr. 70,* 538-40 (Dec. 1944). Substitutes for silk for insulating fine wires include Fortisan, Durafil, Tenasco, nylon and Formex (polyvinyl acetal resin). Cotopa, a Sea Island or Egyptian cotton in which the cellulose is superficially acetylated without loss of fiber strength has good electrical properties but is too bulky for very fine wire. Acetate rayon is particularly suitable under tropical or humid conditions.

STRUCTURAL MECHANICS. H. Umstätter. *Kolloid-Z. 107,* 81-6 (May 1944). A study of structural mechanics of rubber, fibers and other viscous-elastic systems has been made by examination of stress-shearing diagrams. Shearing elasticity is generally smaller than volume elasticity. Stress-shearing diagrams are shown for rubber, rayon and steel. The relation permits an exact statement of the plasticity of the substance.

I, 1. Vegetable

ADSORPTION. K. Lauer, Technische Hochschule, Breslau. *Kolloid-Z. 107,* 86-8 (May 1944). Adsorption of organic vapors by cotton and regenerated cellulose (viscose) fibers is very different from adsorption of water. In general cellulosic fibers have capacity for two kinds of adsorption, polar-hydrophilic and nonpolar-lyophilic.

CELLULOSE STRUCTURE. O. Neunhoeffer, Technische Hochschule, Breslau. *Kolloid-Z. 107,* 104-7 (May, 1944). The system cellulose: water has opposing forces of association. One is true association due to OH groups; the other is lyophobic association caused by hydrocarbon areas in the molecule. The resulting relations explain several hitherto obscure phenomena in the behavior of cellulose.

CROP UTILIZATION RESEARCH O. E. May, USDA. *Mfrs. Record 113,* No. 11, 37-9, 70, 72, 74 (Nov. 1944). Research at the Southern Regional Lab., USDA, in New Orleans includes studies on cotton tire cord, elastic cotton bandages, cork substitutes from farm wastes, adhesives from cottonseed meal and a variety of projects relating to peanut, cereal and fruit crops.

LONG STAPLE COTTON. Anon. *Cotton* (Manchester) *50,* No. 2439, 2 (Jan. 6, 1945). A new hybrid cotton called Moco-Parahyba, raised in Brazil, has average staple length above 34 mm. (about 1½ inch.) and rates high in whiteness, resistance and fineness.

REDWOOD TEXTILES. A. C. Robert. *Textile Age 8,* No. 12, 78, 80-1 (Dec. 1944). Redwood bark fiber known as "Palconia" can be used in blends with wool to make felt, heat insulating fabrics and a variety of other textile products.

VEGETABLE FIBERS. William M. Noon (to Certain-Teed Products Corp.). Can. P. 425 189, Jan. 23. Fibers are produced from lignocellulosic plant materials by steaming under pressure, mechanically defibrating the material and maintaining a sufficient head of the lignocellulosic material above the mechanical defibrator to effect continuous feed.

PRECLEANING AND GINNING TESTS ON INDIAN COTTON. Nazir Ahmad, Technological Leaflets Nos. 7 and 8, Technological Laboratory, Indian Central Cotton Committee, 1944.

Abstracted in *Textile Mfgr. 70,* 537 (Dec. 1944).

GLOSSARY OF TECHNICAL TERMS USED IN FLAX CULTIVATION AND PROCESSING. Ministry of Supply, Director General of Scientific Research & Development, London 1944; 12pp.

Reviewed in *Fibres, Fabrics & Cordage 11,* 464 (Dec. 1944).

OREGON FIBRE FLAX FOR AN AMERICAN LINEN INDUSTRY. Richard Pfefferkorn, Oregon State College Co-Operative Association, Corvallis, Ore., 1944; 44 pp. price 50c.

Reviewed in *Fibres, Fabrics & Cordage 11,* 462 (Dec. 1944).

I, 2. Animal

CATGUT. Anon. *Dyer & Textile Printer 92,* 457, 459-60 (Dec. 8, 1944). First quality catgut is made from the middle membrane and second quality from the outer membrane of sheep intestines. For colored products several acid dyes are useful and can be applied without deterioration of the catgut. Basic dyes are readily taken up but do not penetrate well and are inferior in light fastness. Moistureproofing is a serious problem on gut to be used for musical instrument strings because it is difficult to obtain a satisfactory proofing effect without losing tone quality. For other uses boiled linseed oil and a variety of natural or synthetic resins can be used for moistureproofing.

FELTING. A. J. P. Martin, *J. Soc. Dyers & Colourists 60,* 325-7 (Dec. 1944); discussion, 328. Felting of wool and similar fibers is attributed to compression which prevents looped fibers from returning to the original shape and position after pressure is released. The root ends of the fiber

have an important part in felting whereas the tip ends have only a passive part. Oriented fibers shrink less than fibers in random arrangement. Probably felting under high pressure differs in mechanism from felting under low pressure.

FLEECE WEIGHT. Clair E. Terrill, Elroy M. Pohle, L. Otis Emik and Lanoy N. Hazel, USDA, Bureau of Animal Industry. *J. Agr. Research 70,* 1-10 (Jan. 1945). From tests on 1715 fleeces it is shown that grease-fleece weight is more decisive than staple length of the wool in estimating clean-fleece weight. The influence of staple length is greater in shorter and finer wools than in long or coarse fiber fleeces. Staple lengths in these tests ranged from 56.5 to 89.7 mm. (about 2 1/3 to 3 2/3 inches).

WOOL DEFECTS. Fred Sykes. *Textile World 95,* No. 1, 115 (Jan. 1945). Causes and prevention of defects in wool fabric are discussed with particular reference to faulty draw, oil stains, white or black specks on flannel and breaks in decorative stripes.

NONFELTING WOOL. Archibald J. Hall and Frederick C. Wood (to Tootal Broadhurst Lee Co., Ltd.). USP 2 367 273, Jan. 16. The felting tendency of wool is diminished by treatment with a base stronger than ammonia dispersed in a blended organic solvent containing not more than 2% of water.

I, 3. Artificial (derived from natural products)

ARTIFICIAL FIBERS. R. Bouvet. *Rayon Textile Monthly, 25,* 619-20 (Dec. 1944). Recent advances in rayon and synthetic fibers are reviewed with particular attention to trends for the future. Fiber blends and fabrics are compared to alloys in metallurgy, with similar opportunities for precise control and for producing fabrics to meet a wide variety of performance specifications. It is anticipated that artificial and synthetic fibers will find extensive use in carpets, rugs, blankets and other products in which their entry has already commenced.

ARTIFICIAL FIBERS. H. Wickliffe Rose. *Rayon Textile Monthly 25,* 605-7 (Dec. 1944). A review of recent advances in the manufacture and processing of rayon and synthetic fibers. Rayon staple is an important development and the ultimate compromise between staple length and fineness for technical production and utilization has not yet been reached. Use of rayon in tire cord has necessarily directed attention to toughness as a fiber property which hitherto has received relatively little consideration.

POSTWAR TEXTILES. Irving Teplitz. *Rayon Textile Monthly 25,* 623-4 (Dec. 1944). Future trends in textile technology are discussed in the light of recent advances. Nylon and high tenacity rayons

are expected to occupy a leading position as fibers for special and high quality purposes. A competitive battle between spun and filament rayon is anticipated and blending should occupy an important place because of its wide range of possibilities.

I, 3a. Cellulosic rayons

ACETATE RAYON. W. A. Dickie, *J. Soc. Dyers & Colourists 60,* 332-5 (Dec. 1944). Recent advances in dyeing and processing acetate rayons include solvent dyeing, pre-crêping treatment by a specialized calender embossing, use of the decatiser for finishing acetate rayon and its blends and use of acetate rayon as a carrier for anticeptics, taking advantage of its resistance to micro-organisms.

CELLULOSE SOLUTIONS. Edwin L. Lovell, Rayonier, Inc. *Ind. Eng. Chem. Analyt. Ed. 16,* 683-5 (Nov. 1944). The only available cellulose solvent yielding solutions with good stability to light and air seems to be Triton F, a solution (about 35%) of dimethyldibenzylammonium hydroxide in water. A satisfactory technique has been worked out for determining the chain length of linters, cotton and wood celluloses by viscometry of dilute cellulose solutions in Triton F. Results are compared with viscometry of nitrocellulose and of cuprammonium cellulose solutions.

DENIER FACTORS. Leonard Shapiro. *Rayon Textile Monthly 25,* 620 (Dec. 1944). A correction note concerning the relation between British and American units used in calculating the denier yardage factor for rayon. The numerical differences amount to less than 1 part per million.

PROGRESS IN RAYON. Edw. B. Laufer, Laurence M. Marks Co. *Chem. Eng. News 22,* 1984-9 (Nov. 25, 1944). Illustrated review of price and consumption trends, new products and future prospects in the rayon industry.

CELLULOSE ACETATE. Bruce S. Farquhar and Ferdinand Schulze (to E. I. du Pont de Nemours & Co.) USP 2 365 258, Dec. 19. Cellulose acetate is freed from combined sulfate by washing with water containing not over 0.2 ppm of alkaline earth metal and not over 10 ppm of total mineral residue, and steaming the wet acetate long enough to hydrolyze the sulfate radicals. After steam stabilization the acetate is again washed with mineral-free water.

SPINNING BUCKET. Harry E. Pape (to Am. Viscose Corp.). USP 2 367 237 and 2 367 339, Jan. 16. A rayon spinning bucket has at least one hole in the bottom over which a cake support is placed and through which a pin extends to displace the cake support with respect to the axis of the bucket; and a similarly constructed bucket has a solid drive shaft passing through a hub.

SPINNING BUCKET. Henry Crewdson (to

Am. Viscose Corp.). USP 2 367 338, Jan. 16. A centrifugal rayon spinning bucket has a cake support from which rods extend through the bottom of the bucket to a ring outside the bucket, the ring being connected to the bottom of the bucket by a sleeve.

CELLULOSE ESTER RAYON. Charles R. Fordyce and Gerard J. Clarke (to Eastman Kodak Co.). USP 2 367 493, Jan. 16. Round filaments of cellulose acetate-butyrate are produced by dissolving the ester in a blend of propylene and ethylene chlorides (about 3:1) to form a solution which gels between 10 and 50°C, and extruding this solution above its gelation point through a spinneret first into air and then into toluene at about 28°C.

VISCOSE. Brit. Cellophane Ltd. Brit. P. 561 050. Continuous deaeration of viscose or the like is effected by flowing the liquid in a uniformly thick layer over the side walls of a container under a sufficient vacuum to boil the liquid over the entire surface and withdraw water vapor and gases.

SURVEY OF DEVELOPMENT AND USE OF RAYON AND OTHER SYNTHETIC FIBERS. Robert B. Evans. AIC-64, Bureau of Agricultural and Industrial Chemistry, Washington, D. C., 1944.

I, 3b. Protein fibers

ARDIL. Anon. *Chemistry & Industry 1944,* 438 (Dec. 23/30); *Chem. Age 51,* 560 (Dec. 16); *Textile Weekly 34,* 992 (Dec. 15, 1944). Ardil is a new peanut protein fiber, probably cheaper (in quantity production) than wool and best used in wool blends. It lacks the scaly structure of wool but felts under heat and pressure. It is wool-like in behavior to moisture and dyes.

PROTEIN FIBER. Anon. *Dyer & Textile Printer 92,* 495-6 (Dec. 22, 1944). Ardil (named for the Ardeer factory of Imperial Chemical Industries, Ltd.) is a new protein fiber made from peanuts. It is a cream colored crimped resilient fiber, soft and warm to the touch, mothproof and similar to wool in dyeing properties and moisture absorption.

I, 4. Synthetic

DRY SPINNING. James R. McComb (to E. I. du Pont de Nemours & Co.). USP 2 366 275, Jan. 2. The spinning cell of a dry spinning apparatus contains a spinneret adapted to produce filament bundles of 500-100 denier. The spinneret is placed between the open ends of two opposite cylindrical open air flow tubes, one of which is screened at its opening in the spinning cell wall.

CRINKLED FIBERS. Albert J. Mehler, Jr. (to E. I. du Pont de Nemours and Co.). USP 2 366 278, Jan. 2. A solution of a thermoplastic synthetic filament forming substance is spun through a

spinneret into an evaporative atmosphere at a jet velocity of 285-750 yards per minute, at 20-60°C and is allowed a sufficient length of free fall to form continuous finely and uniformly crinkled filaments.

I, 4a. Nylon type

NYLON YARN. G. Loasby, British Nylon Spinners, Ltd. *Textile Mfr. 70,* 550 (Dec.); *Textile Weekly 34,* 1052, 1058 (Dec. 22, 1944). Some properties of nylon tire cord are tabulated. Extensive postwar use for tire cord, conveyer belts, belting and the like is anticipated.

NYLON YARN. G. Loasby, British Nylon Spinners, Ltd. *Chemistry & Industry 1944,* 282-3 (Aug. 5). Though nylon yarn is strong and elastic it is less so under prolonged light stress than under transient heavy stress. This is especially true at high temperatures and humidities. Under customary processing tension the stretch is about 3 times as much as in viscose rayon. Shrinkage when wet is another characteristic of nylon yarn.

NYLON TIRE CORD. E. I. du Pont de Nemours & Co. Brit. P. 561 344. Impact strength of nylon racket strings and thermoextensibility of nylon tire cord are improved by a treatment with phenol in a solvent which does not dissolve the filaments. The phenol is finally leached out with boiling water or other solvent and dried at 65°C.

ROUND MONOFILS. Johannes Alfthan (to Can. Industries Ltd.). Can. P. 424 489, Dec. 19. Nylon type monofils with circular cross section are made by extruding a melt of the polymer through a circular orifice into water at 35-45°C, and soaking the resulting monofils at least 24 hours in water at about 20°C before cold-drawing.

NYLON TYPE FOILS. Guy B. Taylor (to Can. Industries Ltd.). Can. P. 424 495, Dec. 19. Cold drawing of polyamide foils is effected by drawing a film of the polymer through a hot zone in a series of progressively increasing tension stages, then drawing the foil out of the hot zone in a series of progressively decreasing tension stages.

TREATING NYLON. Willard E. Catlin (to Can. Industries Ltd.). Can. P. 424 506, Dec. 19. Oriented nylon type filaments are treated with a solution of a phenol in a nonsolvent for the filaments and the phenol is then leached out at 70°C or higher with a solvent which is a nonsolvent for the filaments, e. g. in boiling water.

I, 4b. Vinyl and vinylidene polymers and copolymers

EXTRUDED SARAN. J. A. Palmer, Dow Chemical Co. *Modern Plastics 22,* No. 3, 41-6 (Nov. 1944). Extruded Saran is especially useful for tubing, wire insulation, rattan and monofil products. The extruded filaments may be wholly or partially oriented or unoriented. The fully oriented

monofils may have a tensile strength as high as 40 000 psi together with long flexing life, high abrasion resistance and flexibility at low temperatures.

TAPERED BRISTLES. Francis G. Cunningham (to E. I. du Pont de Nemours & Co.). USP 2 365 396, Dec. 19. Artificial bristle brushes are tapered by a machine in which the brush is mounted above a rotating grooved wheel having an abrasive coating.

COLD-DRAWN POLYMERS. Gaetano F. D'Alelio (to General Electric Co.). USP 2 366 495, Jan. 2. A copolymer made from 40-80% acrylonitrile and 20-60% of an itaconic ester having a molecularly oriented structure when cold-drawn.

MELT SPINNING. Elmore L. Martin. USP 2 367 173, Jan. 9. Filaments, tapes or foils of polyethene are formed by extrusion in absence of oxygen at a temperature at least 85° above the melting point of the polymer but not higher than about 450°C.

I, 5. Applications as fibers (not in yarns or fabrics)

BOTTLE CAP LINERS. Brit. Celanese, Ltd. Brit. P. 560 940. A resilient material for treating liners in closures is made from moist particles of regenerated cellulose bonded with a waterproof glue such as cellulose acetate or a resin or gum applied with a volatile solvent.

II. INORGANIC FIBERS

II, 2. Artificial

GLASS FIBER JIG. Edw. Prono and J. M. Butler Consolidated Vultee Aircraft Corp. *Am. Machinist 89,* No. 1, 87 (Jan. 4, 1945). A jig for locating and drilling 86 holes in a curved airplane part was successfully made of glass fiber instead of metal by building up the structure in 19 resin-bonded layers of glass fabric.

DYEING AND PRINTING FIBERGLAS. Aridye pigment booklet No. 1. Aridye Corp., 1944.

Reviewed in *Textile World 95,* No. 1, 198 (Jan. 1945).

III. NONFIBROUS MATERIALS

CELLULOSE GELS. S. E. Sheppard and P. T. Newsome, Eastman Kodak Co. *J. Chem. Physics 12,* 513-9 (Dec. 1944). Electrical anisotropy, like optical birefringence, is a linear function of elongation (up to a certain limit) in xerogels of hydrophilic colloids. Experiments with xerogels of polyvinyl alcohol, cellulose acetate and cellulose hydrate (hydrolyzed cellulose acetate) lend some support to the view that electrical conductivity in textile fibers is partly electronic rather than electrolytic. Probably the main conductance is electrolytic.

MOISTURE PERMEABILITY. Paul M. Doty, Wm. H. Aiken and Hermann Mark, Polytechnic Institute of Brooklyn. *Ind. Eng. Chem., Analyt. Ed. 16,* 686-90 (Nov. 1944). Tests with Cellophane, plain and coated (0.1 and 0.4 mil coatings), Koroseal, 4 nylons, Pliofilm, 2 Sarans, Vinylite (cast and calendered), waxed and 3-ply glassines and ethylcellulose foil indicate that water vapor permeability is governed mainly by diffusion velocity and solubility, with foil thickness, vapor pressure and temperature as controllable variables. The mechanism of vapor permeation through thin foils may involve activated diffusion through forming and disappearing pores, or vapor movement along surfaces covered with active spots.

III, 1. Plastics, resins, rubber

AGRICULTURAL RESIDUES. T. F. Clark and S. I. Aronovsky, Northern Regional Research Laboratory, USDA. *Modern Plastics 22,* No. 4, 60-4, 79 (Dec. 1944). Molding compositions have been successfully produced on a laboratory scale from cornstalks and cobs, straw, flax shives, bagasse, tobacco stalks and oat hull residues. These lignocellulosic materials were hydrolyzed in neutral, acid and alkaline mediums and converted into molding powder. Plasticizers employed for this purpose included aniline with furfural, phenol with furfural and furfural alone. Products made by hydrolysis with aqueous aniline were superior in plastic flow behavior and in resistance to moisture absorption.

PLASTIC PREFORMS. N. J. Taylor. *Plastics 1,* No. 7, 40, 42, 108-10 (Dec. 1944). Production of plastics with large surfaces or complex contours is simplified by making a preform of the fibrous filler on a screen, impregnating the preform with the resin and molding under heat and pressure. The screen must approximate the size and shape of the finished article since there is not much flow in the final molding operation. The influence of fiber type on physical properties of the plastic preforms is tabulated for unbleached kraft, alpha-cellulose, fiber from rags, unbleached sulphite pulp, ground wood, waste paper, asbestos and glass fiber.

III, 1a. Cellulose derivatives

CELLULOSE DERIVATIVES. T. S. Lawton, Jr., T. S. Carswell and H. K. Nason, Monsanto Chemical Co. *Trans. Am. Soc. Mech. Engineers 67,* 23-30 (Jan. 1945). Effects of temperature, humidity, testing speed and sheet thickness on tensile properties of cellulose acetate and nitrocellulose sheeting have been measured. So have the effects of temperature on compressive, flexing, shearing and impact strengths. Results are shown in tables and curve charts.

CELLULOSE PRODUCTS. Ralph T. K.

Cornwell (to Sylvania Industrial Corp.). USP 2 365 455, Dec. 19. Regenerated cellulose is oxidized until it is soluble in aqueous alkali.

CELLULOSIC PLASTIC. Bruce Geller. USP 2 366 781, Jan. 9. Cellulosic plastics are made by agitating a hot dispersion of a lignocellulose product in an inert hydrocarbon bath while adding urea, acetic and sulphuric acids and a lignin resin.

CELLULOSE ETHERS. Laurence L. Rector and Charles L. Cron. USP 2 367 375-6, Jan. 16. A sealing composition includes a cellulose ether in dilution in a solvent with more of a plasticizer than will be soluble in the ether after the solvent evaporates so that the final seal is composed of plasticized cellulose ether covered by a protecting film of plasticizer. A coating composition contains nitrocellulose, cellulose acetate, ethyl- or benzylcellulose together with blown castor oil in a blended solvent; the blown castor oil exudes from the composition as the solvent evaporates and serves to keep the coating in a moist plastic state.

CELLULOSE ESTER FOILS. Walker F. Hunter, Jr., Howard A. Tanner and Robert E. Gillmor (to Eastman Kodak Co.). USP 2 367 503, Jan. 16. Cellulose ester films such as photographic film base are made from cellulose propionates or butyrates or from cellulose acetate-butyrate with the aid of a blended hydrocarbon-alcohol-alkylene chloride solvent in which gelation occurs beteen 10 and 50°C.

NITROCELLULOSE. William E. Sillick (to Eastman Kodak Co.). USP 2 367 533, Jan. 16. Cellulose is nitrated and then centrifuged; the nitrocellulose is thereafter immediately immersed in aqueous nitric and sulfuric acids (total acid concentration 25-40%) at a temperature below 130°. Finally the nitrocellulose suspension is passed through a series of acid washes at progressively decreasing concentration, each approaching equilibrium conditions.

THERMOPLASTIC. BjornAndersen and Raymond F. Strasdin (to Can. Celanese Ltd.). Can. P. 424 815, Jan. 2. Smooth tough glass-like nonblistering and nonwarping thermoplastic articles are formed by homogenizing and converting a mixture of cellulose acetate and a plasticizer in absence of any volatile solvent and extruding the mixture from a hot zone where rapid cooling is effected.

ETHYLCELLULOSE. Arthur P. Mazzucchelli (to Carbide and Carbon Chemicals, Ltd. and Bakelite Corp. of Canada, Ltd.). Can. P. 424 820. A plasticized ethylcellulose composition is prepared in such a way that the surface of moldings made therefrom has no tendency to laminate under friction.

ETHYLCELLULOSE FORMULATIONS WITH RESINS AND PLASTERCIZERS. Hercules Powder Co., Wilmington, Del., 1944.

Reviewed in *Rayon Textile Monthly 25,* 647 (Dec. 1944).

PROPERTIES AND USES OF ETHYLCELLULOSE. Hercules Powder Co., Wilmington, Del., 1944; 48 pp.

Reviewed in *Rayon Textile Monthly 25,* 647 (Dec. 1944).

III, 1b. Polymer resins; natural resins

HIGH POLYMERS. H. Mark, Polytechnic Institute of Brooklyn. *J. Acoustical Soc. America 16,* 183-7 (Jan. 1945). Among the effects of ultrasonic vibrations on polystyrene and other high polymers are molecular degradation, surface tension changes which make or break dispersions, and viscosity reduction.

BONDING ELASTOMERIC RESINS. Carbide & Carbon Chemicals Corp., New York City, 1944; 16pp.; methods for bonding vinylite.

Reviewed in *Plastics 1,* No. 7, 89 (Dec. 1944).

III, 1c. Condensation polymer resins

PHENOLIC RESIN. E. F. Lougee, Plastics Industries Technical Institute. *Plastics 1,* No. 7, 21-4, 103-5 (Dec. 1944). Phenolic resins have many uses in cast plastics with a variety of fibrous fillers, laminates with fiber and fabric fillers and as bonding agents for plywood, metals and other products. The product known as Co-Ro-Lite (cordage fibers impregnated with a phenolic resin) adds greatly to the strength of molded and laminated parts for both hulls and cabins, fuel tanks and airplane parts. This indicates the possibility of postwar use in automobile bodies and truck panels.

PLASTICS IN TEXTILES. H. Jones. *Can. Textile J. 61,* No. 26, 43-4 (Dec. 29, 1944). There is a strong possibility that thermosetting resins can be utilized in fiber manufacture since they can be prepared in concentrated organic solution, presumably capable of serving as spinning dopes with high solids content. Resins as bonding agents, as vehicles for pigments, as finishes and in the manufacture of coated fabric deserve careful attention in textile research and development.

RESORCINOL RESINS. Philip H. Rhodes, Penn. Coal Products Co. *Modern Plastics 22,* No. 4, 58-9, 79 (Dec. 1944). The resinification reaction of resorcinol with formaldehyde is so violent that it has only recently been brought under control for production of the resorcinol analogs of phenolic resins. The products are outstanding in strength and waterproofness as plywood adhesives. They are also useful in making laminates and for bonding nylon and other products. These adhesives and bonding agents have the trade name Penacolite.

MOLDED DISHES. William W. Carter (to Brayton Morton). USP 2 365 331, Dec. 19.

Dishes are molded from a pulp of loosely felted fiber and discrete particles of an uncured synthetic resin of the thermosetting type.

III, 1d. Rubbers and rubber derivatives

SYNTHETIC RUBBER. Anon. *Dyer & Textile Printer 92,* 515, 517-8 (Dec. 22, 1944); *93,* 23, 25 (Jan. 5, 1945). The numerous uses of rubber in dyeing and textile finishing machinery make the properties of the new synthetic rubber and rubber substitutes particularly significant to this industry. Resistance to swelling in aqueous and organic liquid mediums is particularly important. The swelling behavior of natural rubber is compared with that of neoprene and Thiokols A, B and BXF in 14 organic liquids. Some attention is also given to Koroseal.

III, 2. Adhesives; gums; starches

THIN BOILING STARCHES. Donald W. Hansen (to A. E. Staley Mfg. Co.). Can. P. 424 734, Dec. 26. In making thin boiling starches by acid modification the starch is reacted with a hexavalent Cr compound until the soluble starch content reaches a level no higher than about 1% and the desired viscosity is attained.

CHEMISTRY AND INDUSTRY OF STARCH. Ralph W. Kerr, Editor. Academic Press, New York City, 1944; 472pp.; price $8.50.

Reviewed in *Chem. Eng. News 22,* 2048 (Nov. 25, 1944).

III, 3. Surface active compounds; textile assistants

SURFACE ACTIVE COMPOUNDS. C. B. Kinney, E. F. Houghton & Co. *Rayon Textile Monthly 25,* 629-30 (Dec. 1944). The economic value of wetting agents and detergents depends largely on the concentration required to produce the desired effects. Wetting speed is not a linear function of dilution and comparisons should be made on the basis of minimum effective concentration.

WET PROCESSING AGENTS FOR EVERY TEXTILE APPLICATION. Burkart-Schier Chemical Co. Chattanooga, Tenn., 1944.

Reviewed in *Textile World 95,* No. 1, 196 (Jan. 1945).

IV. FIBER TO YARN

IV, 1. Preparation for spinning

COVERING CARDS. Dronsfield Bros., Ltd., *Textile Weekly 34,* 1000, 1002 (Dec. 15, 1944). Illustrated description of the Bronsfield automatic machine for applying new cloth covers to cards. The new machine is important not only as a labor saver but because the mounting of the new cloth is an important factor in quality of the carded cotton.

DRAW FRAME. Anon. *Can. Textile J. 62,* No. 1, 41 (Jan. 12, 1945). The new Saco-Lowell draw frame for rayon staple fiber handles fiber lengths from 1.5 to 3" and is completely equipped with automatic stop motions. The calender rolls are so placed that the sliver has no acute angle bends or short radius turns.

HIGH DRAFTING. J. Noguera, Casablancas High Draft Co., Ltd. *Textile Mfr. 70,* 546-8 (Dec.); *Textile Weekly 34,* 916, 918, 920, 968-70, 1012; discussion 1012, 1014, 1016, 1018 (Dec. 1, 8, 15, 1944). High drafting in cotton spinning permits a reduction in number of speed frames. No comprehensive rule can be laid down. Each case must be decided on the basis of tests in the individual mill. The twin silver principle is employed; it has a definite advantage in many cases but causes some difficulty in adapting it to existing drawing frames.

LAPPING. Charles E. Consterdine, Platt Bros. & Co., Ltd. *Textile Weekly 35,* 14, 16, 18, 72, 74, 76 (Jan. 5 & 12, 1945). Settings are described for correct operation of the modern single process method of lapping. Wrong settings and speeds result in waste and inadequate cleaning of the lap. Good carding is impossible without clean regular lap and the regularity must be across the width of the lap sheet as well as the length.

WOOL CARDS. G. Marshall. *Textile Mfr. 70,* 517-8 (Dec. 1944). The Yorkshire wood and iron sets of carding machines for wool are nearly obsolete; the English and continental types of iron machines may be expected to prevail in postwar construction. The Yorkshire wooden set has some advantages, however, and will probably hold a limited place in postwar installations of carding machines.

COMBING MACHINE. John W. Nasmith. USP 2 365 210, Dec. 19. A textile combing machine has nipper jaws with a spring which applies a closing force to the upper nipper jaw as the two jaws move backward during the operation of the machine.

CARD STRIPPERS. Charles E. White (to Abington Textile Machinery Works). USP 2 365 654, Dec. 19. A driving connection for the traverse motion of a card stripper has a roller pawl pivoted on the nozzle carriage and engaging with the traverse screw. The pawl is cup-shaped to provide a flaring rim portion and its axis is inclined with respect to the axis of the screw.

COTTON WORKING MACHINE. Clarence M. Asbill, Jr. and Ray C. Young (to Claude R. Wickard, as Secretary of Agriculture of the U. S.). USP 2 365 793, Dec. 26. Lumpy cotton is opened into loose fibers on a machine having tooth rolls, one above another, all rotating in the same direction and arranged so that one roll opens

part of a lump of cotton and passes the remainder to the next higher roll, while lumps leaving the top roll are deflected back into the machine.

COTTON CLEANER. Prentiss L. Berry. USP 2 366 705, Jan. 9. A lint flue extending across a cotton gin is connected to the gin by a second flue having a separating chamber in which separate baffle plates are mounted to swing around parallel axes and are separately adjustable as to angular position.

STAPLE FIBER YARN. Claude H. Hays (to Celanese Corp. of America). USP 2 366 785, Jan. 9. A wet bundle of continuous rayon filaments is passed between drafting rolls one of which is driven 10 times faster than the other. The reach of these rolls is at least 5″ and each set of drafting rolls is loaded no more than in drafting staple fiber products.

STAPLE FIBER. J. P. Mackie (to J. Mackie & Sons, Ltd.). Brit. P. 560 902. Staple fiber is produced from a sliver of continuous filaments by drawing in such a way as to break the filaments while spinning them into a staple fiber yarn. From the breaking roll the filaments are delivered to a flyer which twists and winds them on a bobbin.

DUST REMOVAL. S. Holt. Brit. P. 560 969. An improved fan design for ventilating cotton cards and removing dust during stripping, grinding and normal operation has side flaps which enclose the upper part of the machine. Air delivered by the fans passes through a filter and then is recycled.

COMBING MACHINE. F. Denham (to Taylor, Wordsworth & Co., Ltd.). Brit. P. 560 991. The large and small rolls of a "noble" comber are electrically heated by units mounted in stationary housing below each gear wheel.

CARD STRIPPER. William H. Goldsmith, Jr. (to Abington Textile Machinery Works). Can. P. 424 908, Jan. 9. A device for stripping a card so as to assure constant production of a lap with uniform weight continuously removes small increments of accumulated waste fibers beginning from the middle of the cylinder and working toward the end, the rate of removal being such as to provide uniform lap thickness without ever completely stripping the cylinder.

IV, 2. Spinning, doubling, twisting, winding

BOBBIN HOLDER. Anon. *Textile Weekly 34,* 1102, 1104 (Dec. 29, 1944). Illustrated description of a new bobbin holder by Casablancas High Draft Co., Ltd. The new holder does away with skewers, bottom creel bars and brackets. The bobbin hangs by gravity, self-centered and suspended on its holder.

SINGLE TWIST. T. O. Ott, Jr., Textile World. *Textile World 95,* No. 1, 79-81, 188 (Jan. 1945).

Formulas used by spinners for arriving at optimum twist are approximations and are mainly empirical in origin. Such variables as yarn diameter, staple length, humidity, fiber contraction and elasticity are opposed to uniformity of twist. As an aid toward bringing theory and practice closer together the relations of yarn twist to a number of variables are shown in tables and curve charts.

SPINNING BLENDS. Bill McComb. *Rayon Textile Monthly 25,* 621-3 (Dec. 1944). In spinning blends of long staple fibers, including rayon staple, spindle speeds and draft must be adjusted to the kind of fabric desired and a double roving in the creel is essential if smooth even yarns are to be employed for a smooth finish. For rough fabrics with loose twist yarns a single roving may be employed. For nap or brush finishes the warp may be spun from double and the filling from single roving. Temperature, humidity and a number of other variables must be kept under control.

SPINNING RING. William J. Shore. *Textile World 95,* No. 1, 142, 144 (Jan. 1945). A revolving spinning ring has been designed which is potentially capable of doubling spindle speed and increasing yarn output proportionately. The effect of this device on spinning theory is still uncertain but there is a probability it will nullify the 27° angle theory and permit the use of very small diameter bobbins.

BOBBIN HOIST. John H. Larmuth. USP 2 366 145, Dec. 26. A stranding machine has a bobbin hoist acting on guide rods to raise a bobbin into a cradle at a given stage in the operation of the machine.

SPINDLE BLADES. Thomas J. Risk. USP 2 366 653, Jan. 2. A spindle blade is surrounded by a bobbin clutch comprising a pair of nested resilient split tubes which fit each other snugly. The split edges of these tubes are out of registry to limit the entry of foreign matter into the tubes.

SPINNING MACHINE. Fred M. Roddy (to H & B Am. Machine Co.). USP 2 368 379, Jan. 30. A spinning and twisting machine has a driven stub shaft which in turn drives a pinion, swing arms adjustable around the axis of the stub shaft, and locks for holding the swing arms in their adjusted positions.

POSITIVE DRIVE. F. Heald (to Tweedales & Smalley) (1920, Ltd.). Brit. P. 561 352. Positive drive for spindles of spinning and twisting machines is provided by means of individual drive gears, a pair to each spindle, driven from a main shaft which is constructed in removable sections.

SPINNING FRAME. Louis M. Cotchett (to Saco-Lowell Shops). Can. P. 424 551, Dec. 19. A mechanism for spinning and twisting frames has a ring rail connected to a lifter rod which is actuated by a main screw governed by 2 rotary control screws and control nuts.

SPOOL HEADS. Robert V. Olson and Bror A. Johnson (to Mossberg Pressed Steel Corp.). Can. P. 424 704, Dec. 26. Spool heads are formed of sheet metal with an outer edge deflected out of the plane of the disc, the deflected portion being thicker than the rest to add rigidity to the spool head.

TENSIONING DEVICE. Arthur G. Vogt. Can. P. 425 037, Jan. 16. A yarn tensioning device has a long flat arm with a yarn guide at one end and a thimble behind the yarn guide. The arm is bent to form an inclined spring finger carrying a second guide which slides to control the tension imposed on the yarn.

SPINNING FRAME. Louis M. Cotchett (to Saco-Lowell Shops). Can. P. 425 122, Jan. 16. An exceptionally narrow spinning frame is made with two parallel horizontal lines of spindles and two rows of single drawing rolls of thread between the rows of spindles. The space between the spindle rows is covered and air currents caused by the rotation of bobbins keeps the cover practically free from accumulations of lint.

IV, 2a. Cotton; vegetable fibers

SPINDLE SPEED. A. N. Sheldon and J. J. Blake, F. B. Sheldon & Sons. *Textile World 95,* No. 1, 107, 109, 178, 180, 182 (Jan. 1945). Relations between ring diameter, bobbin diameter and spindle speed have been investigated in cotton spinning and their effects on the overall cost of spinning have been calculated. Results are shown in tables and curves.

FLAX SPINNING. S. A. G. Caldwell. *Fibres, Fabrics & Cordage 11,* 460-1 (Dec. 1944). The economies obtainable by modernizing a flax spinning mill include savings in hackling but as compared with hand finishing much larger savings can be effected by combining the use of breaking and ending sections with the hackling machine operation. Comparative costs are presented for hand dressing and machine dressing.

IV, 2b. Wool; worsted

WOOL COMBING. W. H. Robinson. *Textile Recorder 61,* No. 740, 50-1, 81 (Nov. 1944). Use of automatic conveyors is expected to be a highly important postwar contribution to labor efficiency in wool combing. A plant layout including conveyor systems is described and illustrated. It includes separate conveyors for successive stages in wool processing, from scouring to the wrapping and packing of finished tops.

WOOL SPINNING. Leonard Bellwood. *Textile Recorder 61,* No. 740, 46-8, 75 (Nov. 1944). The relative merits and demerits of the ring spinning frame and the mule in making wool yarn are discussed and some machines are illustrated.

WORSTED SPINNING. Anon. *Textile Recorder 61,* No. 741, 42-3 (Dec. 1944). Spinners are faced with many problems in making worsted yarns and it is difficult to isolate the factors which cause deviations from standard quality. Accurate testing is the foremost need in solving such problems. Strength, crease resistance, heat transmission, wind resistance, wearing quality and other properties can be measured quantitatively but certain properties such as handle and luster are difficult to define precisely.

IV, 2d. Rayon

THROWING AND TWISTING. S. J. Miller. *Textile World 95,* No. 1, 117 (Jan. 1945). Accurate twisting is essential to good rayon throwing and the variations in twist should not be more than two turns to an inch. Spindle speed should be reduced for heavy yarns and the flyer should be selected according to the kind of yarn and the twist. A steaming schedule for rayon yarns is presented. The best results are obtained by using an automatic twist-setting conditioner.

THROWING DEFECTS. Edwin C. Dreby. *Textile World 95,* No. 1, 88-9 (Jan. 1945). Defects encountered by the throwster in making rayon yarn include a number of faults which are latent in the yarn but show up in hosiery. Excessive tension causes various irregularities. Steaming relaxes viscose rayon more than other rayons; color effects and luster may be impaired by heat; and a variety of conditions may cause excessive local elongation which later shows up in shortened loops having a stripe effect in the fabric.

SPINNING RING. Alvin Lodge (to Am. Viscose Corp.). USP 2 367 361, Jan. 16. A resilient split ring for rayon spinning apparatus is provided with means for varying the distance between the ends of the ring.

IV, 2e. Winding

COP WINDING. Arundel Coulthard and Co., Ltd. *Textile Weekly 34,* 914-5 (Dec. 1, 1944). Illustrated description of a new patented cop skewer holder which stops jumping skewers and pulling out of cops from their creel holders while the machine is running.

WEFT WINDING. George A. Bennett. *Textile Recorder 61,* No. 740, 59, 61-2 (Nov. 1944). Illustrated description of the "Hacoba" automatic pirn winder as an improvement in weft winding.

TRAVERSING DEVICE. Wilhelm Reiners. USP 2 365 434, Dec. 19 (vested in the Alien Property Custodian). A traversing mechanism for winding machines has a strand guide from which the strand is fed under tension directly to the winding roll at a gradually decreasing angle through a plane perpendicular to the axis of rotation of the roll.

WINDING MACHINE. Frank W. Higgins (to Universal Winding Co.). USP 2 365 701, Dec. 26. A winding machine has two drives, one for rotating the yarn package in the winding di-

rection and the other for unwinding yarn from the package.

HANDLING YARN. Donald R. Hull (to E. I. du Pont de Nemours & Co.). USP 2 366 336, Jan. 2. Two yarns wound on a single support are simultaneously unwound by drawing both yarns in separate and independent paths from one end of the support, the path of rotation of one yarn being inside the path of rotation of the other yarn and the speed of unwinding being equal.

STOP MOTION. Bradford C. Gibbs and Robert H. Roughsedge (to Celanese Corp. of Am.). USP 2 367 768, Jan. 23. A stop motion for a twisting and winding machine has a pivoted lever arm carrying the friction-driven yarn package, and an electric circuit which closes if the yarn breaks, thereby actuating the stop mechanism by releasing the yarn package from its friction drive.

WINDING FRAME. Universal Winding Co. Brit. P. 561 219. A device for controlling package size by stopping a winding machine when the package reaches a specified size, the control device includes a positively reciprocated knock-off pitman with an arm and an extension. The pitman is continuously oscillated by rotation of an eccentric.

IV, 3. Processing and finishing

RESIN-FIBER BONDING. Clementina M. Gordon, Royal Aircraft Establishment. *J. Soc. Chem. Industry 63,* 272-7 (Sept. 1944). By differential staining of synthetic resins and fibers before microscopy it has been observed that phenolic resins penetrate the cotton fiber wall and apparently combine. The product may be of the lignocellulose type. The reaction strengthens the resin-fiber bond.

YARN HOLDER. Ivan W. Grothey (to Scott & Williams, Inc.). USP 2 366 101, Dec. 26. A yarn cone stand has a support for the yarn holder and the holder has a flexible member for exerting a light drag on the yarn as it passes from the cone to prevent kinking as the yarn is drawn from the cone.

TREATING YARNS. Herbert E. Kresse and Charles F. Dulken. USP 2 366 198, Jan. 2. A thread in motion is moistened by passing it over a roller which revolves in contact with a wick dipping in a liquid the level of which regulates the pressure and quantity of liquid supplied to the roll.

TREATING THREAD. John P. Tarbox (to Industrial Rayon Corp.). USP 2 368 386, Jan. 30. A thin layer of treating liquid is applied to a thread which is being wound on a horizontal carrier while blowing a stream of gas against the treated thread as it advances so that the liquid is caused to flow against the direction of thread motion.

TWIST-SET YARNS. Isaac P. Davis and Carl Schlatter (to Am. Viscose Corp.). Can. P. 424 463, Dec. 19. Fabrics are made from a yarn in which the twist has been set by treatment with a water-dispersible fatty acid ester of hexitan and the twist setting medium is removed from the fabric by scouring in an aqueous medium.

IV, 4. Products (thread, yarn, cord, etc.)

ROPE DIE. Harold Cantrell, Thomas Jackson and William Howarth (to Brit. Celanese Ltd.). USP 2 366 593, Jan. 2. A die for rope making is built up from a series of apertured plates clamped together so that the apertures join to form a slightly tapered passage through the center.

BEADED CORD. Leonard Z. Plebanek (⅓ each to Anthony Bird and Charles J. Strebel). USP 2 366 932, Jan. 9. Cord is continuously fed through rotating dies and spots of glue are applied at intervals. Each rotating die is supplied with material which is thereby applied to the glue spots from opposite directions to form beads on the cord.

FILTER. Merrill G. Hastings, Harry J. Hayward and Robert L. Fielding (to Merrill G. and Emita E. Hastings). USP 2 368 216, Jan. 30. A filter tube is made by winding yarn on a revolving support to form spaced cross convolutions leaving diamond shaped passages, and napping the yarn during winding so that passages are partly filled with projecting fibers.

ACETATE YARN. Can. P. 424 438, Camille Dreyfus, Dec. 19. Acetate yarn of relatively high denier and filament count is improved in affinity for acetate dyes and in resistance to acid fading by a treatment with 33-38% NaOH solution at 20-30°C for 30 to 120 seconds.

RAYON VERSUS COTTON CORD FOR TIRES. Investigation of the National Defense Program, Part 21 (Committee Hearings, U. S. Senate, 78th Congress). Superintendent of Documents, Washington, D. C., 1944; price $1.00.

IV, 5. Applications as yarn

BOTTLE STOPPER. William I. Taylor (to Henry Dreyfus). Can. P. 425 142, Jan. 16. A bottle stopper is made by winding a continuous yarn around a core and covering the yarn layer with a flexible skin.

IV, 5b. Laminates

LAMINATES. K. W. Pepper and F. T. Barwell. Nat'l Physical Lab. and Chemical Research Lab., Dept. of Scientific and Industrial Research. *J. Soc. Chem. Industry 63,* 321-9 (Nov. 1944). The tensile strength of fiber-reinforced plastics increases with increasing amount of fiber *if* the voids are thoroughly filled with plastic. Void filling is the main function of pressure in bonding. In paper laminates the use of dense paper leads to good strength at bonding pressures as low as 250 psi.

V. YARN TO FABRIC

V, 2. Sizing

MOTHPROOFING FURS. D. Traill, A. McLean and H. H. S. Bovingdon, Imperial Chemical Industries Ltd. *Chemistry & Industry 1944,* 284-6 (Aug. 5.) A treatment with HCHO, HCl and NaCl shows promise of serving as a basis for an effective mothproofing treatment for animal hairs and furs. In fur processing the treatment replaces the usual pickle. In wool processing the treatment would introduce an extra operation. Treated goods are both repellent and toxic.

WARP SIZING. Robert N. Foster (to Monsanto Chemical Co.). USP 2 365 402, Dec. 19. Warp yarns are treated with a colloidal dispersion of a phosphate, then sized, woven and desized with water which need not be softened since the phosphate prevents any damage by Ca or Mg hardness.

SPUN RAYON WARP SIZING: Part I. A. Summary Report on Warp Sizing Research Conducted by Textile Research Institute, Inc. in the School of Textiles, North Carolina State College. Wm. E. Shinn. Part II. Weaving Efficiency and Film Properties of Warp Sizing Materials. Gypsy Frankenberg, Arnold M. Sookne and Milton Harris. Textile Research Institute, 10 E. 40th St., New York City, Nov. 1944; 49 and 30 pp., mimeographed.

V, 3. Weaving

COLOUR PATTERNS. S. Brierley. *Textile Mfr. 70,* 519-21, 536 (Dec. 1944). Ornamental pattern effects in simple weft-backed woolen and worsted fabrics can be produced in color by interchanging the face and backing threads. The patterns depend on the kind, count or color of the interchanging yarns. Fancy effects are easy to produce on a dobby loom by using local warp textures. Several designs are described and illustrated.

V, 3a. Looms

LOOM DESIGN. Albert Palmer, Crompton & Knowles Loom Works. *Can. Textile J. 61,* No. 25, 39, 41 (Dec. 15, 1944); *52,* No. 1, 32-3, 37 (Jan. 12, 1945). Wartime developments may be expected to influence postwar loom design in numerous ways. One of the serious and difficult problems is the picking motion. Electronic control for looms is already available but the difficulties introduced by induction have yet to be overcome in reaching the full utilization of electronic instrumentation and control.

LOOM. Octave P. Caron. Can. P. 425 009, Jan. 16. A loom has a doup heddle with an eye for a doup thread, a jumper heddle with an eye for a ground thread and between them an auxiliary heddle with the eye nearer to its bottom than its top to keep the doup thread near the jumper heddle always lower than the jumper heddle eye.

V, 3b. Loom parts

TEXTILE ACCESSORIES. Ernest Briggs, Jones Textilaties, Ltd. *Textile Weekly 35,* 20, 22, 24, 80; discussion 82 (Jan. 5 & 12, 1945). One of the greatest advances in textile machine accessories has been in the heald which is a vital part of the loom. Research and mechanical ingenuity have produced heald for every type of yarn. Reeds, temples and spindles are also receiving attention and some improvements have been effected.

THREAD HOLDERS. Walter H. Wakefield (to Crompton & Knowles Loom Works). USP 2 365 666-7-8, Dec. 26. A thread holder for weft replenishing looms has reserve bobbins from which weft ends extend between meshing geared members, one of which has a driving connection to the take-up roll to apply tension to the weft ends. In another mechanism the cloth take-up roll has a friction surface which rotates while the loom operates and the gears through which the weft ends extend drive a roll which engages the friction surface. In another form a stop cooperates with the driving gear to hold the driven gear in working position to tension the weft ends.

THREAD HOLDER. Elliot A. Santon (to Crompton & Knowles Loom Works). USP 2 365 844, Dec. 26. A thread holder for weft replenishing looms is also adapted to remove weft ends after they have been cut at the selvage.

CLOTH TAKE-UP. Julius Sirmay (to Jacquard Knitting Machine Co., Inc.). USP 2 366 462, Jan. 2. A cloth take-up is rotated by intermittent steps, so that greater tension is applied as the cloth tension decreases and vice versa. The turning effect on the take-up is varied in direct relation to the radius of the cloth wound on the beam, to counteract the tension-reducing tendency of the increasing radius.

LOOM TEMPLE. Alois Arlequeeuw. USP 2 366 994, Jan. 9. The base and carrier of a loom temple are provided with interfitting convex and concave portions capable of sliding one over the other. The convex surface carries a binding bolt and the concave surface has a hole through which the bolt extends but which is wide enough to permit rocking of the part in different directions so that the bolt can be used for adjustments in different planes.

MOVABLE REED. H. Pegg. Brough, Nicholson & Hall, Ltd. Brit. P. 560 993. An improved beat-up motion for looms lessens the friction of the warp threads. Between the upper vertical section and the lower beat-up section of the reeds is an intermediate section having alternate wires in different planes to provide a wider interval between adjacent wires.

ROLL GRIP. J. A. Sutcliffe. Brit. P. 561 247. An improved cloth roll grip for looms requires less attention by the weaver and permits the loom to

turn out longer lengths of cloth. It operates by pressure of the cloth roll on a sand roll.

TESTS ON THE SUITABILITY OF INDIAN WOODS FOR THE MANUFACTURE OF TEXTILE AND JUTE MILL ACCESSORIES. I. SUBSTITUTES FOR PERSIMMON AND CORNEL FOR COTTON MILL SHUTTLES. M. A. Rehman and Chheda Lal. II. CARE AND SEASONING OF WOOD FOR BOBBINS, PICKER ARMS AND JUTE MILL ROLLERS. M. A. Rehman, Indian Forest (Utilisation) Bull. 121/1943, New Series. Indian Forest Research Institute, Dehra Dum, India; Publications Officer, India House, Aldwych, London WC2; price 4 annas or 5 d. each.

Cited in *Eng. 158,* 268, 308 (Oct. 6 and 20, 1944).

V, 3c. Control devices; stop motion; bobbin selectors

WARP STOP MOTION. I. Laird, *Textile Mfr. 70,* 431-3, 522-5 (Oct. and Dec. 1944). Although warp stop motions date back to 1786 and have numerous mechanical advantages they still have certain drawbacks, differing somewhat with different designs. In general, warp stop motions impose more strain on the warp yarn and may cause belting and speeding at the pins. Badly set pins scrape the warp ends and if filament rayon yarn is undersized they cause more broken ends and filaments. Mechanical troubles are sometimes caused by warp stop motions and weavers tend to prevent them by rendering the warp stop motion inoperative. First cost is the main obstacle to wider use of warp stop motions.

STOP MOTION. Tillmon J. Sanders. USP 2 368 427, Jan. 30. A stop motion for loom harness has a first pivoted lever under the harness, and a blade carried by a second pivoted lever is arranged to act only when the loom harness breaks.

V, 3e. Defects

LOOM BANG-OFF. H. E. Wenrich. *Textile Age 8,* No. 12, 98-9 (Dec. 1944). Rising swords, a defect directly attributable to loom bang-off, can be largely or entirely eliminated by careful inspection and maintenance. A method for use in case of loose bolts is described.

SELVAGE DEFECTS. H. E. Wenrich. *Textile World 95,* No. 1, 86-7 (Jan. 1945). In many cases weavers can prevent excessive tightness or looseness in selvages and the defects which give ragged, loopy or buttonhole effects. Artificial and synthetic fibers are more difficult to control than the natural fibers, especially on automatic bobbin winders where they have a tendency to squeeze the barrel and warp the bobbin.

WEAVING DEFECTS. H. E. Wenrich. *Rayon Textile Monthly 25,* 625-6 (Dec. 1944). Weaving defects due to broken picks and related causes are described and illustrated. Inspection is important

but prevention is preferable and in many cases broken picks can be prevented if the foreman is watchful.

V, 4. Knitting

KNIT FABRIC. Anon. *Textile Mfr. 70,* 543-4 (Dec. 1944). Recent developments in tricot knitting machines include FNF high speed warp knitting, the Whitin Model B and the Alfred Hofman Simplex machines. Other manufacturers promise improved postwar models. A postwar vogue for warp-knit goods is anticipated.

TIRE CORD. Anon. *Mfrs. Record 114,* No. 1., 110-1 (Jan. 1945). Illustrated description of rayon tire cord manufacture at the new U. S. Rubber Co. plant, Scottsville, Va. A leading new product is Ustex, a treated cotton yarn with 70% higher tensile strength than the untreated yarn, for parachute harness.

WARP KNITTING. Anon. *Engineer 178,* 401 (Nov. 17); *Can. Textile J. 61,* No. 25, 42 (Dec. 15); *Silk and Rayon 18,* 1324-5 (Dec.); *Textile Recorder 61,* No. 741, 47, 61 (Dec. 1944). The new FNF warp knitting machine is revolutionary both in design and in performance. An installation in a Courtaulds mill has operated at 1000 rpm for a year. There is no presser, and all cams have been eliminated excepting in the pattern box. The machine knits a million yards of yarn in an hour into 30 yards of 84" fabric, averaging only 1 thread break per 100 yards of fabric.

KNITTING MACHINE. Paul W. Bristow (to Scott & Williams, Inc.). USP 2 365 801, Dec. 26. A knitting machine is fitted with a device which accelerates closure of the needle latches to seize the yarn as it is fed to the course of loops carried on the needle shanks.

KNITTING MACHINE. Ernest Brooksby and Frederick E. Deans (to Bentley Engineering Co., Ltd.). USP 2 366 001, Dec. 26. Transfer of loops from one set of needles to the next set is effected by moving the needles of one set into engagement with those of the next set so that needles of the second set are moved out of control of the needle actuating cams.

STOP MOTION. Clyde B. Hayes and Howard H. Thorpe (to Van Raalte Co., Inc.). USP 2 366 105, Dec. 26. A stop motion for knitting machines is actuated by displacement of broken or slack threads from their normal path and the displacement is effected by an air current blowing against the threads on the machine.

KNITTING MACHINE. Frank R. Page and John J. McDonough (to Scott & Williams, Inc.). USP 2 366 124, Dec. 26. A circular knitting machine has its needle butts differentiated into groups and combined with sinkers which form terry loops when inserted earlier than usual by a cam which is arranged to push sinkers in early.

YARN GUIDE. Frank G. Weisbecker (to Hosiery Patents, Inc.). USP 2 366 137, Dec. 26. A yarn guide has a resilient section which is releasably held in connection with a support when the yarn guide is moved laterally into engagement with the holder.

KNITTING MACHINE. Melchoir Zwicky (to Textile Machine Works). USP 2 366 227, Jan. 2. A full fashioned knitting machine is equipped with a device for maintaining the initial relative positions of the sinker head and needle bar during displacement of the center bed.

KNITTING HOSIERY. Fritz Lambach. USP 2 366 340, Jan. 2. Knitting full fashioned hosiery with the leg and foot blanks as a unitary fabric and the high heel portions of the leg length directly interknitted with the sole portions of the foot blanks, then suitably arranging all the courses of heel and sole portions on the needles of a full fashioned hosiery knitting machine in their relative positions.

YARN FEED. Paul S. Smith (to Ellen Bertha Allen). USP 2 366 364, Jan. 2. A yarn feed mechanism passes the yarn through a clamp which alternately grips and releases the yarn. The mechanism is so arranged that a first loop is formed in the yarn before the clamp and a second loop after the clamp.

YARN CONTROL. Thomas C. Bromley and Arthur Shortland (to Mellor Bromley & Co., Ltd.). USP 2 366 381, Jan. 2. A yarn control mechanism for knitting machines has two take-up members, one for a weaker yarn than the other. They are connected by a coupling so that they are capable of limited movement with respect to each other and together to and from the needles of the knitting machine. The pivots on which the two take-up members are mounted are at different distances from the coupling.

KNITTING MACHINE. Henry H. Holmes and John C. H. Hurd (to Wildt and Co., Ltd.). USP 2 366 405, Jan. 2. A length-and-length knitting machine has an improved device for deflecting appropriate slides operating the double end needles in their motion from one needle bed to the other so that the slides are released from the needles at the proper time.

KNIT FABRIC. Elsa Hörler. USP 2 366 856, Jan. 9. A textile fabric is made in rows of closed alternately upper and lower loops by interlacing the thread with a preceding upper loop just before a new upper loop is formed and with a preceding lower loop just before a new lower loop is formed.

KNITTING MACHINE. Harry W. and Ernest Start. USP 2 367 972, Jan. 23. A straight bar knitting machine has separately driven thread carriers on each knitting head and the drive for each thread carrier has opposite levers and a reciprocating driving bar to engage with the levers.

STOP MOTION. Jacob Wachsman. USP 2

368 184, Jan. 30. A stop motion for knitting machines is arranged to be operated either by closing an electric circuit when a thread breaks or by movement of the take-up mechanism into a predetermined position.

KNITTING MACHINE. Charles Koppel. USP 2 368 224, Jan. 30. A cylinder type knitting machine has lengthwise needle grooves along a wall surface in which accumulation of dust and dirt is prevented by openings through the cylinder wall at the bottom of each groove.

KNITTING MACHINE. H. W. and E. Start, G. Blackburn & Sons, Ltd. Brit. P. 561 082 and 561 103. A plating mechanism on straight-bar knitting machines permits plated or spliced work to be turned out while the machine runs at normal speed. The construction is such that driven members can be made very light and moved into operation at high speed without losing the correct position of the plating thread carriers and without heavy impact at the end stop when the driven member comes to rest. Wear on the machine can be reduced by operating the plating or splicing thread carriers with the aid of a slide which is positively reciprocated between end stops by a driving bar.

COMPOSITE STOCKING. R. L. Carter (to K. Allsop, Ltd.). Brit. P. 561 114. A combined stocking and ankle sock is made on two separate machines, one of which knits the foot and a turnover top ankle while the other knits the leg. The rib top of the ankle sock may be made on a rib top machine and then knit to the plain foot on the needles of a half hose machine.

KNIT FABRIC. R. Kretser. Brit. P. 561 339. Great variety in design and pattern can be obtained in knitting by feeding each one of a variety of yarns individually through the needle and knitting intermittent courses to form a series of stitches. By this method patterns can be knit on a circular knitting machine.

V, 5. Pile fabrics, laces, embroideries, netting

EMBROIDERY MACHINE. Victor J. Sigoda (to Man-Sew Pinking Attachment Corp.). USP 2 365 222, Dec. 19. A sewing machine for making embroidery has a reciprocating needle bar carried on a frame which is vibrated laterally while shifting it laterally in accordance with a predetermined design.

LACE. Thomas L. Williams (to E. I. du Pont de Nemours & Co.). USP 2 365 315, Dec. 19. Laces and similar fabrics are made by stitching the fabric on a film support composed of plasticized polyvinyl alcohol.

IMITATION LACE. Nathan E. Dahlman. USP 2 366 183, Jan. 2. A length of fabric woven in imitation of lace is treated with a synthetic resin to prevent raveling at the edges of design portions so that the lace effect is maintained.

RESILIENT PLUSH. A. E. Swaine (to T.

W. Firth & Sons, Ltd.). Brit. P. 561 248. A resilient cushion material is made up from layers of uncut double plush fabric connected together and interconnected by threads or cords at spaced intervals.

PILE FABRIC. W. I. Taylor and J. F. Levers. Brit. P. 561 376. Windproof and waterproof pile fabrics can be made by forming the pile of flat cellulose derivative filaments, crinkling in a boiling aqueous bath and applying a backing from natural or synthetic rubber latex, or an alkyd or acrylic or methacrylic resin, or an interpolymer such as a butadiene: acrylonitrile polymer, or cellulose acetate. Example: A fabric with cotton backing and acetate rayon pile is given 2 back-filling treatments with a paste of kaolin and a plasticized synthetic resin "Bedafin 2001." After drying and baking 2 min. at 140°C, the fabric is windproof and waterproof.

V, 6. Mechanical processing

FIBROUS SHEET. Henry Himmell. USP 2 368 024, Jan. 23. A felted sheet of fiber is treated on both faces with an adhesive to bring the interlaced fibers into smooth and compact formation; the sheet is then split and the newly exposed faces are similarly treated.

TREATING RAYON. Robert W. Moncrieff and Harold Bates (to Celanese Corp. of Am.). USP 2 368 154, Jan. 30. The stretchability of acetate rayon is improved by stretching in hot water or steam and then treating in a solution of a swelling agent which does not shrink the rayon.

BONDING RESINS. Brit. Thomson Houston Co., Ltd. Brit. P. 561 045 and 561 076. Resins for bonding cotton or linen fibers or sheets together are made by condensing 6,6-diamino-5-triazinyl-2-cyanomethyl sulfide with an aldehyde. Another suitable resin component is 2,4,6-triareido-1,3-diazine.

FINISHING FABRICS. U. S. Rubber Co., Brit. P. 561 152. Deposition of resin particles on fabrics from aqueous dispersion is improved to permit deposition of larger resin particles so that the hosiery or other fabrics are more strongly bonded at the thread intersections.

DECORATED FABRIC. Henry Freiberg & Samuel Freiberg (assignee of ½ of Henry Freiberg's interest). Can. P. 424 583, Dec. 19. Surface decoration on fabrics is applied as a pressed setting of metal, synthetic resin, glass, wood or stiffened textile fibers, bonded with a synthetic resin adhesive.

UNWOVEN FABRIC. Fred W. Manning. Can. P. 424 612, Dec. 26. A composite fabric is made by depositing discrete natural fibers to form a primary web over which a secondary web is formed from short filaments of a plastic spinning material in promiscuously intersected formation. The plastic filaments are then hardened to bond the secondary web to the primary web.

PLASTIC-BONDED FABRIC. Carleton S. Francis, Jr. (to Sylvania Industrial Corp.). Can. P. 424 869, Jan. 2. Potentially adhesive organic plastic fibers are formed in admixture with nonadhesive organic fibers and the resulting felted fibrous web is bonded together to a fabric by rendering the plastic fibers adhesive.

V, 7. Products; design; construction

COAT FABRIC. Anon. *Am. Wool & Cotton Rept. 58,* No. 52, 12-13 (Dec. 28, 1944). Fabric for topcoats of the kind containing 25-30% rayon, 10-15% wool, 10% mohair and carbonized re-used worsted yarn requires particular care in fulling so that a firm even felt is obtained which is neither too heavy nor too thin. Care is also necessary in washing, extracting, napping and shearing. Fabric for women's coats requires special treatment.

DUCK PRODUCTION. T. O. Ott, Jr., Textile World. *Textile World 95,* No. 1, 72-3 (Jan. 1945). Expedients employed by the Beaumont mills to increase duck production and relieve the shortage of tentage duck are centered mainly around manpower problems. A comprehensive health program has reduced time losses from accidents and sickness. Aid to workers in matters of housing and transportation, child care and domestic help have also contributed much to full time operation.

NEW PRODUCTS. Anon. *Chem. Eng. News 22,* 2042 and 2212 (Nov. 25 and Dec. 25, 1944). News notes concerning Lanaset (Am. Cyanamid Co.), a new melamine resin for shrinkproofing wool; a new series (Tennessee Eastman Corp.) of fast dyes for acetate rayon and nylon; a flame proof glass cloth coated with synthetic rubber (U. S. Rubber Co.) for use where resistance to gasoline, oils, water, mildew, insects and chemicals is required; a chemically treated cotton gauze for bandages (USDA, Southern Regional Research Laboratory); an abrasive cloth for cleaning surfaces (Downy Products Co.), the abrasive being Downite bonded to terry cloth; and a hot dope spray for coating airplane fabrics, gliders and plywood sections of airplanes (Sherwin-Williams Co.).

SUITING. Leonard Bellwood, *Textile Weekly 34,* 1004, 1009-10, 1112, 1114 (Dec. 15 & 29, 1944). Twist yarns and marl yarns have numerous uses in the design of worsted suiting for men's clothing. They soften the sharpness of design effects and lessen the intensity of colored decorative yarn effects. Several constructions are described and illustrated.

WORSTED SUITING. Leonard Bellwood, *Textile Weekly 34,* 746, 748, 834, 836, 838, 922, 924, 926 (Nov. 3 & 17, Dec. 1, 1944). Blends of wool with cotton and rayon are suitable for cheap grades of worsted suiting. Several types of piece-dyed fabric for the purpose are described and illustrated. The hygroscopicity of wool is a valuable feature for tropical suiting.

YARN CALCULATIONS. H. Pegg. *Textile Mfr. 70,* 553 (Dec. 1944). Methods for adapting slide rules to use in yarn calculating are described and illustrated by examples.

KNIT COVERS. Edward J. Herter, Jr. (to Metal Textile Corp.). USP 2 365 268, Dec. 19. Knit jackets for use as protective covering have an inner mesh layer of soft yarn in a tight, closely knit loop structure and an outer mesh layer of stiffer more loosely knit yarn providing an open loop structure.

WOOL BLENDS. Louis B. Strauss. USP 2 366 070, Dec. 26. Wool is blended with fur fibers, spun into a yarn and made into a cloth which is washed in hot water, rinsed immediately in cold tap water, dried in an extractor to a damp dry state and finally dried in a heated tumbler so that the fibers migrate to the surface of the cloth.

SAUSAGE CASING. Lloyd E. Dimond. USP 2 366 710, Jan. 9. Sausage casings are made of a fabric with a longitudinal seam of elastic thread so arranged that it can stretch only crosswise of the seam.

FLEXIBLE HOSE. Charles W. Greene (to Flex-O-Tube Co.). USP 2 366 853, Jan. 9. Hose is braided around a waxed mandrel and the wax is then melted by heat so that part of it penetrates the hose while the remainder lubricates the hose-mandrel interface.

DRIER FELT. John R. L. Santos (to William F. Hooper & Sons Co.). USP 2 367 438, Jan. 16. A drier felt fabric is made of unwoven stuffer warp threads, upper filling threads on top of the stuffer warps, lower filling threads under the stuffer warps and binder warp threads interwoven with the filling threads so that the top of the fabric is smooth.

WOVEN FABRIC. Robert Whewell and Andrew Bauer, Jr. (to United Merchants & Mfrs., Inc.). USP 2 367 744, Jan. 23. Fabric is made with a closely woven body portion and contrasting portions of an open leno weave having a specified relation of warp and weft threads as to numbers and position.

HAIR CLOTH. William Whitehead (to Camille Dreyfus). Can. P. 424 999, Jan. 9. A stiffening fabric for garments and industrial articles is woven with a warp of nonthermoplastic yarn such as cotton blended with acetate rayon, while the weft is formed of horsehair coated with an organic cellulose derivative. The coated horsehair is bonded to the warp yarns under heat and pressure.

PRELIMINARY OBSERVATIONS ON THE SUITABILITY OF COTTON CLOTH FOR COVERING BALES INSTEAD OF HESSIAN. C. Nanjundayya and Nazir Ahmad. Technological Bull., Series A, No. 60, Indian Central Cotton Committee, Bombay, 1944; ii+10 pp.; price 12 annas.

V, 8. Applications: nontextile uses of fabrics

OIL FILTERS. James E. Hurn (to DeLuxe Products Corp.). USP 2 366 190, Jan. 2. An adsorption type filter cartridge for lubricating oil contains adsorbent cellulosic fibers impregnated with a surface active compound such as the lauryl or stearyl amide of ethylphosphoric acid or the lauryl amide of lauryl amine ethylphosphate.

MOUNTING TISSUE. Allen Abrams and George W. Forcey (to Marathon Paper Mills Co.). Can. P. 424 845, Jan. 2. Photograph mounting tissue is made by coating a paper base with a hot melt composition of plasticized ethylcellulose and a nonvolatile solvent such as hydrogenated castor oil.

V, 8a. Insulation

INSULATING TAPE. Oscar J. Rudolph (to Union Asbestos & Rubber Co.). USP 2 366 291, Jan. 2; Can. P. 425 134, Jan. 16. Heat insulating tape for wrapping pipe is woven with an outer wall, side wall and inner wall having warp threads of predetermined lengths, the lengths being shortest in the inner wall and sufficiently longer in the outer wall to permit spiral wrapping of pipe without substantial compression of the tape. The filling of the tape is composed of large, loose soft rovings of heat resisting, heat insulating material.

INSULATION. Clifford I. Haney and Mervin E. Martin (to Celanese Corp. of Am.). USP 2 367 275, Jan. 16. Insulating material is made by compounding a partially polymerized phenol resin with particles of a cellulose ester or ether not over 0.7 in. in any dimension and setting the phenolic resin under heat and pressure.

INSULATING TAPE. Joseph N. Borglin (to Hercules Powder Co.). USP 2 367 663, Jan. 23. Electrical insulating tape is made by facing a fabric support with an adhesive containing 20-65% polymerized rosin, 30-70% of a waxy constituent and 0.5-35% of a plasticizer for the polymerized rosin.

INSULATING SPACER. John J. Weldon (to General Electric Co.). USP 2 368 505, Jan. 30. A spacer for separating the windings of electrical apparatus is made from a rolled strip of cellulosic material formed into a rectangular bar and notched on one face at suitable intervals.

V, 8b. Coated or impregnated products

POLISHING DISK. Carl F. Schlegel (to Schlegel Mfg. Co.). USP 2 366 877, Jan. 9. A polishing disk is made with a body formed of fabric tape wound spirally upon itself. The tape is woven but terminates at one edge in pile strands of loose weft yarn. The weft and warp strands are bonded together and to the woven tape by impregnation with a rubber composition.

IMPREGNATED FABRIC. George Knapp (to Certain-Teed Products Corp.): USP 2 367

587, Jan. 16. Fabric or paper is impregnated by applying the impregnating composition to one side of the piece and continuing the application until thorough penetration to the other side of the piece is effected. A sealing coat is applied to the other face to prevent absorption of air and moisture.

LINOLEUM. James W. Kemmler (to Sloane-Blabon). USP 2 368 475, Jan. 30. A floor covering composition is applied to a nonflexible fabric backing by passing the fabric and composition through calender rolls while advancing the backing faster than the composition.

TIRE FABRICS. George L. Bruggemeier, William T. Runals and Binghamm J Humphrey (to Firestone Tire & Rubber Co.). Can. P. 424 523, Dec. 19. Continuous production of rubberized tire fabrics is carried on by impregnating the fabric with a latex composition containing an alkali-solubilized protein, drying the wet impregnated fabric and heating it for 30-60 minutes above 100°C to render the fabric strongly adhesive to rubber.

PLASTIC PROTECTIVE CLOTHING. Resistoflex Corp., Belleville, N. Y., 1944; 16pp.
Reviewed in *Plastics 1,* No. 7, 89 (Dec. 1944).

V, 8c. Laminates

PAPER LAMINATES. L. H. Ritter, McDonnell Aircraft Corp. *Plastics 1,* No. 7, 30-2 (Dec. 1944). Laminates of phenolic resin and paper have been produced with an ultimate tensile strength of 45,000 psi or nearly three times the strength of ordinary fabric or paper base laminate. The product, named Structomold, is considerably lighter than magnesium and is successfully used in a variety of aircraft parts. Other laminates made with fabric and with Fiberglas are also used in aircraft.

THERMOSETTING LAMINATES. John Delmonte and E. Watkins, Plastics Industries Technical Institute. *Plastics 1,* No. 7, 26, 28, 100-1 (Dec. 1944). Even though thermosetting resins are infusible their creep behavior at high temperatures makes it possible to shape cured phenolic resin laminates much after the manner of thermoplastics. Shaping is much easier with laminates made with bias type fabrics than with straight weave fabrics. Phenolic resins prepared with a slight undercure are easier to shape than fully cured or overcured resins.

DIALYSIS. Friedrich K. Daniel (to Hornkem Corp.). USP 2 365 457, Dec. 19. A dialyzer has successive cells of which one face is held against a rubber gasket and the other against a semipermeable membrane. The cell frames are formed of a laminated fibrous sheet material impregnated with a synthetic insoluble, infusible resin.

FLOOR COVERING. Johan L. Goudsmit. USP 2 365 814, Dec. 26 (vested in the Alien Property Custodian). A floor covering is made by bonding a fabric layer on one face to a layer of rubber and on the other face to felt paper impregnated with a fusible adhesive moistureproofing agent.

LAMINATION. C. A. Redfern and F. W. Elliston-Erwood (to Dux Chemical Solutions Co.). Brit. P. 561 351. Fibrous sheets are impregnated with a phenolaldehyde resin for use in lamination. The sheets are dried by blowing hot air on both sides of the moving sheet.

VACUUM PACKAGE. Lorin B. Sebrell (to Wingfoot Corp.). Can. P. 424 768, Dec. 26. A container for vacuum-packed food products is made of a laminated sheet in which one film is composed of rubber hydrochloride and the other of regenerated cellulose joined by an adhesive, with or without a paper facing over the regenerated cellulose layer.

LUG STRAP. Henry M. Bacon (to Dayton Rubber Mfg. Co.). Can. P. 424 931, Jan. 9. A lug strap is composed of laminated rubberized fabric bonded to an outer portion of reinforcing parallel cords.

LAMINATES. Wilfred Gallay (to Honorary Advisory Council for Scientific and Industrial Research). Can. P. 424 938, Jan. 9. Sheets of open mesh fabric impregnated with a like weight of a thermoplastic synthetic resin are bonded together under heat and pressure to form a laminated fabric useful as a sole leather substitute. The resin may be a polyvinyl butyral plasticized with dioctyl phthalate, dibutyl sebacate or a triethyleneglycol butyrate ester.

LAMINATES. Louis Glass (to Camille Dreyfus). Can. P. 425 000, Jan. 9. Laminates are made by folding a curved fabric inside a bias-cut fabric envelope and bonding the layers together under heat and pressure. The product is useful in sweat bands for hats.

VI. FINISHING

NEW CHEMICALS. Anon. *Rayon Textile Monthly 25,* 647 (Dec. 1944); *26,* 49 (Jan. 1945). News notes concerning the Emycel Fabric Finishing System for rotproofing aircraft fabrics; the Calcomet line of wool dyes offering advantages of economy and quality; Hercules nitrocelluloses with improved solubility and consequent saving in ester solvents; ethylcellulose for fabric coatings and other uses; a self-cooling drinking water bag; Santocel for thermal insulation; flameproofing synthetic fibers with an antimony compound; chlorinated Isopol as a substitute for chlorinated rubber; the new Firestone leather-like plastic Veloflex; dimethyl phthalate as hair dressing as well as an insect repellent, and allyl alcohol as a raw material for resins and textile chemicals.

VI, 1. Preparation

TENTERING. G. K. Seddon & H. Blakeley. Brit. P. 561 164. A continuous combined tentering and cropping process dries the wet, scoured cloth in a tentering machine and attaches it to a wrapper which has been threaded through a cropping machine before or behind the tentering so that tentering, drying and cropping constitute in effect a single operation.

VI, Ia. Boiling and scouring

SOAPS FOR WOOL. Anon. *Am. Wool & Cotton Reptr. 58,* No. 52, 9-10, 42-3 (Dec. 28, 1944). Solid and flaked soaps of high and low titer have a variety of specific uses in the preparation and processing of wool. Titer is the Centigrade freezing point of the fat from which the soap is made; it ranges from 8-20 for olive oil and red oil soaps to 28-32 for tallow and palm oil soaps. Their relative merits and cost factors depend on local conditions and on the purpose for which the soap is used.

VI, 1d. Drying and conditioning

DRYING MACHINE. K. S. Laurie, John Dalglish & Sons. *Silk & Rayon 18,* 1332-3 (Dec. 1944.) The new patented Dalglish cloth drier with automatic speed control combines compactness and ease of control with rugged durability. The speed control device is applicable to most types of cloth driers including stenters, cylinder driers and the Air-lay drier.

ELECTRONIC DRYING. Anon. *Textile Age 8,* No. 12, 102 (Dec. 1944). Illustrated description of a fast, highly efficient electronic drier (Federal Telephone and Radio Corp.) called the Megatherm. The smallest unit (3 kw., power cost 5¢ per hour) generates enough heat for continuous narrow-web drying at 60 ft. per minute.

DRIER CONTROL. Raymond E. Olson (to Taylor Instrument Cos.). USP 2 366 801, Jan. 9. A control device for steam can driers removes condensate after admitting steam through the cans and stops the venting of the cans when the condensate from a selected can reaches a predetermined temperature.

DRYING OF TEXTILES. Textile Research Institute, New York City, 1944; 68 pp.; price 75¢ (to nonmembers).

Reviewed in *Rayon Textile Monthly 25,* 648 (Dec. 1944).

VI, 5. Mercerizing

FIBER STRUCTURE. K. Lauer, Technische Hochschule, Breslau. *Kolloid-Z. 107,* 93-103 (May 1944). Mercerization under tension converts the quasicrystalline zones in cotton fiber to a highly stretched state with closer packing of molecular chains and formation of new irreversible cross linkages. This increases tensile strength but elongation at break drops almost to zero. Regenerated cellulose fibers (if regenerated in presence of a dehydrating agent) reach at high stretch a state similar to that of the amorphous zones in stretch-mercerized cotton. The fiber is embrittled and the lattice structure is unriented.

MERCERIZING LYE. Burkhard von Becker (to Sherka Chemical Co.). USP 2 368 277, Jan. 30. The wetting power of mercerizing lye is increased by adding an isopropylated phenol and a phenol-aldehyde condensation product of an aminoarylsulfonic acid.

VI, 6. Sizing and finishing

FINISHING MACHINERY. K. S. Laurie. *Textile Recorder 61,* No. 740, 64-5, 67 (Nov. 1944). Postwar developments in finishing machines will probably be along four major lines, namely closer control of fabric, easier control of machines, increased output and new machines to match new developments in fabrics.

SIZING RAYON. T. O. Ott, Jr., Textile World. *Textile World 95,* No. 1, 99, 101 (Jan. 1945). The choice of a correct size for spun rayon is governed largely by the nature of the fiber. Yarns with a high acetate content require gelatin in the formula. Firm, evenly warped section beams are essential and positive stretch control at the size box is preferable, especially since the low weft strength of rayon readily permits excessive stretching if care is not exercised. A thin boiling corn starch size can be used on straight viscose or blends containing at least 75% viscose rayon. The three essentials of a good formula are the size, the lubricant and the binder.

TEXTILE FINISHING. Anon. *Textile Weekly 34,* 1065-6, 1068, 1070, 1106-8 (Dec. 22 & 29, 1944); *35,* 32, 34, 36 (Jan. 5, 1945). A review of progress for the year 1944 in dyeing and finishing artificial and natural fibers.

TREATING TEXTILES. Eric O. Ridgway, Frederick C. Tucker and Charles J. Kintner. USP 2 368 158, Jan. 30. Natural cellulosic textiles are treated with hot, caustic alkali then washed and treated in at least 4 baths of dilute acid. Before each bath treatment and after the final bath the material is dried to less than 70% of its own weight of retained moisture.

PILE FABRIC. James A. Clark (to Sylvania Industrial Corp.). Can. P. 425 220, Jan. 23. A finish for pile fabric comprising an alkali-solube, water-insoluble cellulose ether and an alkali-soluble resin which are simultaneously coagulated on the fabric to form a permanent bonding deposit.

VII. COLOR

VII, 1. Bleaching

STRIPPING. Anon. *Rayon Textile Monthly 25,* 634 (Dec. 1944). Brief hints are given on reagents and methods for stripping dyes from dyed fabrics. Previous exposure of the fabric to sunlight has a considerable effect on stripping, whether or not the exposed area was dyed.

BLEACHING. Robert L. McEwen (to Buffalo Electro-Chemical Co.). USP 2 366 740, Jan. 9. Cellulosic fabrics portions of which are dyed with a naphthol dye are bleached with less than 90% of their weight of an alkaline peroxide bleach (pH below 9.5) in an atmosphere containing steam without permitting condensation of steam on the fabric.

BLEACHING. Clifford A. Hampel (to Mathieson Alkali Works, Inc.). USP 2 367 771, Jan. 23. Cellulosic materials are bleached in a bath having a pH between 3 and 9. The bath contains an aldehyde and a chlorite of an alkali or alkaline earth metal.

BLEACHING. Mathieson Alkali Works. Brit. P. 560 995, 561 022. Cellulosic materials are bleached in a bath containing a chlorite and a persulfate of an alkali or alkaline earth metal. The bath may be acid or alkaline (pH 3-11).

VII, 2. Dyeing

AUTOMATIC DYEING. Anon. *Can. Textile J. 61,* No. 25, 47, 49 (Dec. 15, 1944). Automatic control of skein dyeing provides maximum flexibility and permits accurate duplication of dye baths with a minimum of adjustments. An installation at Maitland Spinning Mills by Taylor Instrument Companies of Canada is described and illustrated.

COTTON DYEING. E. R. Wiltshire. *Textile Recorder 61,* No. 740, 56-8, 74 (Nov. 1944). Postwar trends in cotton dyeing will probably include improvements in physical properties of existing dyes to meet more exacting requirements; more extended applications of pigment dyeing; use of improved dyeing assistants such as leveling agents; greater mechanization of dyeing operations on the package system; adaptation of continuous dyeing to more processes and use of fast dyes on finished goods and netting.

DYE HOUSES. Anon. *Fibers, Fabrics & Cordage 11,* 477-9 (Dec. 1944). Use of hot water under sufficient pressure to raise the temperature to the vicinity of 300°F (or sometimes even 400°F) effects substantial fuel savings in dye house operations and permits easy thermostatic temperature control. The Sarco temperature regulator which is made without glands is particularly advantageous for temperature control in hot water heating of dye vats, dyeing rooms and driers.

DYEING HOSIERY. K. E. Scott. *Textile Mfr. 70,* 544 (Dec. 1944). Logwood (hematin) can still be used effectively in dyeing hosiery. Directions are given for mordanting and dyeing in black and dark blue shades. Fustic is useful for cheap, drab and brown shades. These old natural dyes may well be used on medium priced goods, saving the more expensive and faster acid dyes for high class work.

DYEING PROPERTIES. Anon. *Dyer & Textile Printer 92,* 475-6 (Dec. 8, 1944); *93,* 39-40 (Jan. 5, 1945). Cotton fiber generally has a thickness of 1-2 denier while viscose rayon filaments average about 3-4 denier and have a higher luster. As a result cotton fibers appear to be dyed more deeply for like dye absorption than viscose rayon. The difference is less pronounced in mercerized cotton in which the fibers are rounder, thicker and more lustrous. Staple length also has an indirect influence on depth of color in dyed fabrics. Some causes of defects in dyeing rayons are discussed.

DYEING SLUBBING. C. L. Bird, Leeds Univ. *Textile Recorder 61,* No. 741, 56-7, 59, 61 (Dec. 1944). Slubbing may be dyed either in hank or ball form. The relative merits of the two methods are described and equipment is illustrated.

DYEING SYNTHETICS. Arthur W. Etchells, Hellwig Dyeing Corp. *Am. Dyestuff Reptr. 34,* P29-32, discussion P62-4 (Jan. 15); *Textile World 95,* No. 1, 91, 93, 95 (Jan. 1945). Improvement in dyeing rayon and synthetic fibers includes use of inhibitors to prevent gas fading of acetate rayon; padding chrome colors in dyeing nylon; cross dyeing of Aralac blends while avoiding use of caustic solutions, and control of stretch since stretched yarns are difficult to dye uniformly and effectively.

DYES ON WOOL. G. A. Gilbert. *Proc. Royal Soc. 183,* 167-81 (Nov. 30, 1944). Equations for titration of fibrous proteins with acids agree with observed data for adsorption of dyes on wool in presence of salt. The influence of temperature on ionic equilibrium in the adsorption of dye anions is calculated, and tested experimentally by using a rapid null method for reaching equilibrium

LININGS. Anon. *Dyer & Textile Printer 92,* 477-9 (Dec. 8, 1944). In dyeing cotton-viscose linings the production of tone-in-tone effects is facilitated by pretreatment with caustic potash on a jigger under tension. Several Chlorazole and Chlorantine dyes are suitable for these lining blends. For black the best dye is aniline black. Luster is imparted to the fabric on a hydraulic calender.

DYEING RAYON. George H. Ellis and Alexander J. Wesson (to Celanese Corp. of America). USP 2 365 809, Dec. 26. Cellulose ester or ether rayon or foil is dyed by impregnating with a solu-

tion of a dye and a solution of a mordant metal salt in a liquid medium which is a swelling agent for the cellulose derivative so that a lake of a mordant dye is formed in the fiber or foil.

DYEING RAYON. Camille Dreyfus. USP 2 366 241, Jan. 2. In dyeing acetate rayon or like fabrics with water-insoluble dyes from an aqueous dispersion the affinity of the dye for the fabric and the acid fastness of the dyed fabric are improved by an alkali treatment lasting 30-120 seconds at 20-30°C.

DYEING AND DRYING. Henry E. Millson (to Am. Cyanamid Co.). USP 2 366 347, Jan. 2. Uniformity in dyeing and drying fibers is achieved by passing the dyed fibers through an alternating electrostatic field having a frequency below the optical range but not lower than the radio short wave range so that the generated heat removes excess liquid without disturbing the uniformity of dye distribution.

APPLICATION OF DISPERSOL VL IN DYEING. Technical Circular, Dyestuffs Division, Imperial Chemical Industries, Ltd., London, 1944; applications to vat dyeing.

Reviewed in *J. Soc. Dyers & Colourists 60,* 343 (Dec.); *Silk & Rayon 18,* 1345 (Dec. 1944).

ANCIENT AND MEDIEVAL DYES. W. F. Leggett, Chemical Publishing Co., Brooklyn, N. Y., 1944; 95 pp.; price $2.25.

Reviewed in *J. Soc. Dyers & Colourists 60,* 341 (Dec. 1944).

VII, 2a. Direct

DYEING RAYON. Technicus. *Silk & Rayon 18,* 1222, 1225 (Nov. 1944). The sulfonated long chain alcohols have a number of advantages when used as an aid to level dyeing of rayon. They can be used for scouring under acid conditions and do not form insoluble lime soaps. They are effective in washing off, even from very heavy prints with a large amount of paste when all the surplus dye must be removed in one washing.

PAD STEAM DYEING. C. Norris Rabold, Textile World. *Textile World 95,* No. 1, 84-85 (Jan. 1945). Continuous pad-steam dyeing has been developed to a large scale production basis in a redesigned machine at the Union Bleachery. Small liquor volume, low chemical cost and adaptability to quick changes from one shade to another are advantages of the new equipment. Uniformity is achieved largely through quantitative chemical control.

DYEING ACETATE. Brit. Celanese Ltd. Brit. P. 561 249. Acetone-soluble acetate rayon can be dyed by impregnating it with a solution of a dye in aqueous acetone, preferably 0.01 to 4% dye in 40% acetone. Penetration of the dye into the fabric is thus greatly facilitated.

DYEING PROPERTIES OF DIRECT COTTON DYES. Geigy Color Co., Ltd., Manchester 1944; 103 graphs.

Reviewed in *Dyer & Textile Printer 92,* 461-2 (Dec. 8); *J. Soc. Dyers & Colourists 60,* 343 (Dec. 1944).

VII, 2c. Vat

VAT DYEING. P. W. Benn. *Can. Textile J. 61,* No. 26, 38 (Dec. 29, 1944). Mills which lack the necessary equipment for the pigment pad process of dyeing are successfully employing a vat process for cotton piece goods. The improved method gives better control over dyeing and eliminates streakiness often encountered in dyeing pastel shades.

DYEING BOOSTER. Jack L. Green. USP 2 366 100, Dec. 26. Fabric in a dye vat is wound on a spirally arranged series of rolls below the liquid level, and then is taken by a pair of rolls, placed inside the spiral, vertically out of the dyebath.

VII, 2d. Printing

TEXTILE PRINTING. Anon. *Textile Age 8,* No. 12, 84 (Dec. 1944). An illustrated description of a new type textile printing machine with overhead motors and conveniently located controls. Use of rubber covered cylinders eliminates lapping costs and prolongs the life of blankets and grey goods.

TEXTILE PRINTING. Christopher S. Jones. *Textile Age 8,* No. 12, 92, 94 (Dec. 1944). The paste has a large influence on textile printing and care must be used both in its preparation and in its application.

DYEING TEXTILES. Charles H. Masland, II. USP 2 367 730, Jan. 23. Making yarn by forming a continuous flat band of unspun fiber, applying a dye by intaglio printing on both sides of the band and treating the band with urea-formaldehyde before drafting and spinning into yarn.

PRINTING TEXTILES. Henry Jenett (Interchemical Corp.). Can. P. 424 833-4, Jan. 2. Textile fabrics such as shirtings or flannel are printed in sharp, clear, decorative designs with printing paste comprising an emulsion of water in a pigmented lacquer containing a resin which bonds the pigment to the fiber after removal of the water and organic liquid.

PRINTING TEXTILES. Norman S. Cassel (to Interchemical Corp.). Can. P. 424 835, Jan. 2. A composition for making textile printing paste by conversion to a water-in-lacquer emulsion contains a nonaqueous dispersion of a water-dispersible thickener in a water-immiscible organic solution of a water-soluble dye and a film forming substance.

PRINTING TEXTILES. Selwyn Cooper (to Atlas Powder Co.). Can. P. 424 915, Jan. 9. A

thickener for textile printing pastes comprises water-soluble methylcellulose and a water-soluble dibutylated phenylphenol disulfonate.

PRINTING TEXTILES. Stephen B. Stafford and Herman A. Smith (to Rice Barton Corp.). Can. P. 424 973-4, Jan. 9. A machine for printing textiles at a uniform rate has independent but synchronized drives for the printing roll and the fabric feed. Tension on the cloth between printing roll and drying drum is thus kept uniform.

SOME OBSERVATIONS ON THE PRINTING OF ACID DYESTUFFS ON VISCOSE AND CUPRAMMONIUM RAYON. W. Meitner, Dyestuffs Division, Technological Monograph, No. 2, Imperial Chemical Industries, Ltd. London, 1944.
Cited in *Silk & Rayon 18,* 1343 (Dec. 1944).

VIII. PROOFING

TREATING TEXTILES. Anon. *Industrial Bull. 1945,* No. 206, 4 (Jan.). News notes concerning recent advances in processing textiles, e. g. the Syton treatment, Reslooming, shrinkproofing and creaseproofing with Lanaset and shrinkproofing wool by chlorination. The new Samuel Slater memorial laboratory at Massachusetts Institute of Technology is superbly equipped for testing these and other developments and for original research on textiles.

VIII, 1. Waterproofing; weatherproofing; moistureproofing

MOISTUREPROOF FOILS. C. R. Oswin, British Cellophane, Ltd. *Chemistry & Industry 1944,* 429 (Dec. 16). A unit of resistance to aqueous penetration, to be known as RAP, is proposed as the millibars of pressure required to drive 1 g. of water vapor through 1 sq. in. of foil in 24 hours. Data expressed in this unit are presented for moistureproofed Cellophane, nitrocellulose, Polythene, polyvinyl chloride and rubber hydrochloride.

WATER REPELLENCY. Al Cornhall, Cornhall & Malamut. *Textile Colorist & Converter 66,* 520-1 (Dec. 1944). The Textile Fabrics Association has set up a program of minimum standards for water repellency in treated fabrics. One standard relates to renewable and another to durable water repellency. The standards are based on a spray test. The problem of shrinking in water-repellent fabrics is not yet solved.

WAX EMULSIONS. J. C. Aherne and J. Reilly, Univ. of Cork. *Trans. Faraday Soc. 40,* 551-5 (Dec. 1944). Emulsions of water in paraffin oil, when aided by Mona wax (extracted from peat with trichloroethylene and solubilized in white spirit), have good permanence although their mechanical stability is low.

WETTABILITY. A. B. D. Cassie and S. Baxter, Wool Industries Research Assoc'n. *Trans. Faraday Soc. 40,* 546-51 (Dec. 1944). For high structural water repellency a fabric should have large contact angles (both advancing and receding) for water drops, and should not impede the mobility of the drop. The water repellency of duck feathers is due to their structure, not to a water-repellent substance.

VIII, 3. Proofing against microbiological attack

NAPHTHENATE FUNGICIDES. W. J. Carter, Cuprinol, Ltd. *Chem. Age 51,* 517-20 (Dec. 2, 1944). Naphthenic acids and their K, Cu and Zn salts are effective aids in stabilizing marine cordage, filter bags, brattice cloth, miners' boots and other products against fungi and other pests.

OILED DUCK. M. S. J. Twiselton, LMS Railway. *J. Soc. Chem. Industry 63,* 220-3 (July 1944). Cotton duck for freight car tarpaulins suffered least damage when rotproofed with a mixture of Shirlan NA (Shirley Institute's Na salt of salicylanilide) and p-nitrophenol (NP), then coated with linseed oil pigmented with a bauxite residue. Duck for this purpose was formerly made of flax and hemp. The tendering effect of NP rotproofing is much smaller than that of Cu naphthenate or the mineral khaki (MK) process.

VIII, 5. Creaseproofing

CREASEPROOFING. Anon. *Rayon Textile Monthly 25,* 631 (Dec. 1944). Modern creaseproofing resins of the urea-formaldehyde and melamine-formaldehyde type can also be made to increase tensile strength and improve draping quality, dye fastness and shrinking resistance of fabrics. The melamine resins in particular are compatible with textile starches and oils and also with agents used for proofing against water, fire and mildew.

CREASEPROOFING NYLON. Ernest B. Benger (to E. I. du Pont de Nemours & Co.). USP 2 365 931, Dec. 26. Nylon type fabrics (m. p. at least 200°C) are given improved resilience and laundryfast crease resistance by treatment first in a swelling bath and then on hot finishing rolls near but below the melting point.

VIII, 6. Shrinkproofing

NONSHRINK WOOL. F. Townend. *Textile Recorder 61,* No. 741, 48-9, 55 (Dec. 1944). With the aid of the newer gas chlorination method of shrinkproofing wool it should be possible in postwar fabric to produce two-tone and other decorative effects by controlling dyeing conditions to take advantage of the faster rate of dyeing imparted by chlorination.

SHRINKPROOFING WOOL. Anon. *Textile News Bull. No. 332,* 92 (Dec. 1944). A study of wool shrinkage by the Textile Foundation at the request of the Quartermaster Corps shows that shrinkage of wool socks can be diminished by about 95%. The treatment uses Ca hypochlorite under controlled conditions. Treated socks have about 60% longer life than untreated socks.

SHRINKPROOFING WOOL. T. Barr and J. B. Speakman, Leeds University. *J. Soc. Dyers & Colourists 60,* 335-40 (Dec. 1944). Treatment of woven wool fabrics with a cross-linking agent such as mercuric acetate or benzoquinone imparts high shrinkage resistance. Wear resistance is also increased by the treatment.

SHRINKPROOFING WOOL. J. Edward Lynn. Am. Cyanamid Co. *Am. Dyestuff Reporter 33,* P554-9; discussion 559 (Dec. 18, *Textile World 94,* No. 11, 89 (Dec. 1944). For reasons not yet clearly understood melamine-formaldehyde resins are much superior to other resins in controlling the shrinkage and felting of wool. An unexpected additional advantage is that these resins eliminate the bleeding of many dyes. This is particularly important for plain designs. Photographs of treated and untreated yarns and fabrics are shown.

WOOL SHRINKAGE. W. J. P. Neish and J. B. Speakman, Leeds Univ. *Nature 155,* 45-6 (Jan. 13, 1945). Pretreatment with O.1 *N* NaOH seriously impairs the shrinkproofing effect of chlorination or of reaction with SO_2CL_2 with or without NaOH. Probably breakdown of -SS- linkages is the main cause of shrinkproofing, and the alkali pretreatment converts these to more resistant cross-linked bonds.

SHRINKING RAYON. W. J. Simpson (to Brit. Celanese Ltd.). Brit. P. 561 402. The shrinkage of regenerated cellulose rayon made by hydrolyzing stretched filaments of cellulose acetate is improved by impregnation with a strong (30-75%) mercerising lye. Immediately after impregnation the alkali is neutralized with an acid and the material is washed. The preshrunk fabric obtained in this way is particularly useful for covering aircraft fuselages.

IX. TESTING AND ANALYSIS

STANDARDS OF TEXTILE MATERIALS. (1944). ASTM, Philadelphia, 1944; 490 pp.; price 75¢.

IX, 1. Physical and mechanical

CREEP IN PLASTICS. William N. Findley, Univ. of Illinois. *Modern Plastics 22,* No. 4, 51-7, 77-8 (Dec. 1944). Information on creep behavior of plastics is mostly based on tests made at constant temperature, humidity and uniaxial stress. New tests have now been made with temperature, humidity and loading conditions as variables. Results are tabulated and shown in curve charts for paper and canvas laminates, cellulose acetate sheets, phenolic resins and phenolic molding compounds with asbestos, wood flour, rag fiber and cord as fillers. Interpretation of creep test data as a logarithmic function of time may permit reliable extrapolations for prediction of creep behavior. Results indicate probable agreement with the activation energy theory but are not yet sufficient to establish the definite fact of agreement.

STATISTICAL ANALYSIS. P. Larose, Nat'l Research Laboratory. *Can. Textile J. 62,* No. 1, 39, 42, 44 (Jan. 12, 1945). Statistical analysis can be effectively employed in textile testing to trace the causes of defects, measure variability in quality, compare quality of different products and in many cases to give warning of impending trouble.

TEXTILE TESTING. H. Kennedy and J. Willock. *Fibres, Fabrics & Cordage 11,* 464, 467, 469 (Dec. 1944). Optical methods in textile testing show promise of outstanding contributions to existing knowledge of fibers and their properties. Ultraviolet and infrared light, x-ray and fluorescence all have their place in textile testing. Examination in fluorescent light detects the difference between camel hair and dyed wool imitation and is also useful in estimating the degree of retting of flax. Infrared light is useful in matching dyed shades.

IX, 1a. Fibers

DENSITY DETERMINATIONS. K. Lauer and U. Westermann, Technische Hochschule, Breslau. *Kolloid-Z. 107,* 89-93 (May 1944). Density of cellulose fibers has been measured in water and several organic liquids, using plain and mercerized American Upland, Sea Island and Sakelaridis cottons, isotropic viscose and viscose oriented by stretching to 10, 50 and 100% elongation. The medium influences the density, which therefore has no physical significance for the fiber outside of the medium.

MODULUS OF ELASTICITY, J. W. Ballou and S. Silverman, E. I. du Pont de Nemours & Co. *J. Acoustical Soc. America 16,* 113-9 (Oct. 1944). A sonic method can be used to measure Young's modulus for fibers and foils. Linen, after wetting and drying under tension, showed the highest modulus among fibers, while wool and undrawn nylon were lowest, with viscose rayon yarns intermediate. Cellophane and foils of cellulose acetate and ethylcellulose were also tested.

VARIATION IN COPPER NUMBER, CUPRAMMONIUM FLUIDITY AND FIBER STRENGTH OF COTTON STORED UNDER HIGH HUMIDITY. C. Nanjundayya. Technological Bull. Series B, No. 32, Indian Central Cotton Committee, Bombay, 1944; ii+8 pp.; price 8 annas.

IX, 1c. Fabrics; foils; films

CELLULOSIC FOILS. Robert C. Gray, Glasgow Univ. *J. Soc. Chem. Industry 63,* 241-5 (Aug. 1944). Birefringence of regenerated cellulose foils (Cellophane, Diophane, Rayophane, Sidac, Viscacelle) is influenced by the pressure under which the viscose is extruded, the rate of coagulation and the stresses encountered by the foil during casting. Tensile strength in the machine direction tends to increase as birefringence increases.

FABRIC WARMTH. Frederick T. Mosedale, U. S. Testing Co. *Textile World 95,* No. 1, 97, 186, 188 (Jan. 1945). Fabric warmth as a comfort factor

is influenced by fabric construction, the nature and finish of the fiber, the thickness and air permeability of the fabric and the effects of repeated laundering. A warmth testing machine of the guarded hot plate type measures the rate of heat transmitted by the fabric under conditions resembling heat loss from the human skin.

PERCALE. Dorothy Saville, Oklahoma A. and M. College. *J. Home Economics 37,* 39-42 (Jan. 1945). Expensive high count percales are generally much superior to cheap low count percales in strength but are often no better in dye fastness and resistance to shrinkage. Loosely woven percales do not shrink more than the close weaves. Tests on samples from retail stores (both prewar and present) show wide quality variations in the same price range, and price variations for like quality.

POROSITY. M. A. Sieminski and G. H. Hotte, Warwick Mills. *Rayon Textile Monthly 25,* 608-10 (Dec. 1944). In any study of porosity as a property of textile fabrics, it is necessary to distinguish between total and effective porosity. Several methods of measuring porosity are described, all of which yield a value for effective porosity nearly identical with the total porosity. This is because most fabric constructions are such that the voids are at least to some extent interconnected. Thickness of the fabric is a variable which must be measured with great care. As a factor in porosity the thickness should be measured at approximately the pressure to prevail in the porosity test.

WORK CLOTHING. Margaret B. Hays, Luella S. Joiner and Dorothy C. Caudill, Bureau of Human Nutrition and Home Economics. *J. of Home Econ. 37,* 100-5 (Feb. 1945). A study of work shirts and overalls has been made with respect to price and quality with particular reference to breaking strength, dye fastness, shrinkage, laundry fastness and durability. Chambray shirts have less abrasion resistance than those made of other fabrics. Twill weave pocket linings have higher abrasion resistance than those made of plain weave heavy muslin. Laundering caused measurable but not serious loss in breaking strength.

IX, 1d. Textile chemicals and dyes

DYE FASTNESS. Anon. *Chem. Age 52,* 9-10 (Jan. 6, 1945). The new KBB (Kelvin, Bottomley and Baird, Ltd.) Fugitometer is an accelerated fading tester developed in collaboration with the Wool Industries Research Assoc'n. The light source is a standard carbon arc lamp.

IX, 2. Chemical

IX, 2a. Fibers

DETERMINING WAX. Carl M. Conrad, Cotton and Fiber Branch, War Food Administration. *Ind. Eng. Chem., Analyt. Ed. 16,* 745-8 (Dec. 1944). A new determination of wax in cotton fiber is performed in 2 steps. Wax is extracted with hot 95% ethanol, then transferred to $CHCl_3$ by a phase separation method to eliminate sugars, inorganic substances and the like.

X. WASTE RECOVERY AND UTILIZATION; WASTE PREVENTION

CELLULOSE HYDROLYSIS. J. W. Dunning and E. C. Lathrop, Northern Regional Research Laboratory, USDA. *Ind. Eng. Chem. 37,* 24-9 (Jan. 1945). Hydrolysis of cellulose to sugar has been developed into a 2-stage but continuous process for application to agricultural waste such as corncobs, bagasse, flax stalks, oat hulls and cottonseed hulls. Lignin remains as an insoluble residue but nearly quantitative separation of pentosan and cellulose is effected. From the cellulose extraction a 10-12% dextrose solution is obtained in 85-90% of theoretical yield. The pentosan fraction is a 15-20% xylose solution.

XII. HAZARDS; SAFETY PRECAUTIONS

XII, 1. Fire

ELECTRICAL HAZARDS. Anon. *Silk & Rayon 18,* 1338, 1340-1 (Dec. 1944). Textile mills usually rely on direct grounding of electrical equipment to minimize the risk of fire and shock. Frequently the grounding is faulty even when installed or becomes faulty because of corrosion or other changes so that protective devices do not operate. Correct practice in safe and durable grounding of electrical machinery is described and illustrated.

XII, 3. Occupational poisoning and diseases

X-RAY OPACIFIER. Louis J. Strobino. USP 2 367 446, Jan. 16. Finely dispersed lead particles are introduced into gloves and other articles to serve as an opacified flexible shield protecting operators against x-ray injuries. The fabric is impregnated with a concentrated lead dispersion in water and then dried so that lead particles are entangled throughout the thickness of the fabric.

XIII. TEXTILE MILLS

COTTON MILL PRACTICE. Oswald Glaessner. *Textile Mfr. 70,* 531-3, 536 (Dec.); Textile Weekly *34,* 962, 964, 967 (Dec. 8, 1944). Cotton mill practice in continental Europe and particularly in Czechoslovakia is compared with British practice with respect to power supply, spinning, doubling and weaving machinery and labor relations.

NEW EQUIPMENT. Anon. *Rayon Textile Monthly 25,* 639-40 (Dec. 1944); *26,* 44-5 (Jan. 1945). Illustrated descriptions of an air control for the Rodney Hunt washing machine; a generator for dielectric heating and drying; fiber and fiber covered shuttles; the Hancock Electric Level Float Control for accurate maintenance of liquid level; air-operated (Bristol) controllers for various heating, pressure or vacuum operations; a wall type air conditioner

with adjustable control for central heat; the Skidmore cold quartz ultraviolet light for testing dyes, chemicals and textile fibers; a ball bearing roll type scray and a slip plate batcher by Birch Bros.; picker sticks bonded with Tego resin; heat resisting and chemically inert neopreme-covered rolls for machinery; a method for avoiding soft noses on filling bobbins of nylon and other yarns; the Norelco x-ray spectrometer and a carbon flue construction for handling corrosive gases.

TEXTILE IMPROVEMENTS. Anon. *Textile World 95,* No. 1, 123-4, 126, 128 (Jan. 1945). Illustrated descriptions of the U. S. Testing Co. fabric shift tester; the Federal Telephone & Radio electronic heating unit; the "Slinline" series of fluorescent lamps; the Brabenden semiautomatic moisture tester; Bristol air-operated controllers for atmospheric conditions; the "American Speed Jack" variable speed drive for small power units; a portable dust collector by Dust Filter Co.; Perm-Aseptic-Ramplex as a germicide and fungicide; the Emycel fabric finishing system (Roxalin Flexible Finishes) for rotproofing fabrics; and Dolanize as a durable water-repellent finish for military uniform fabrics.

XIII, 2. Machinery

BELT DRIVES. Anon. *Textile Recorder 61,* No. 741, 71, 73, 81 (Dec. 1944). The principles of belt drives as applied to textile machinery are discussed with reference to tension ratios, centrifugal tension and the use of stepped pulleys.

COTTON MANUFACTURE. A. Wyn Williams. *Textile World 95,* No. 1, 82-3 (Jan. 1945). The report of the Platt Commission, which came from England in 1944 to visit American cotton mills, indicates that British mills need more modern machinery. Only about 5% of British looms are automatic. Labor requirements for given operations are accordingly much higher in England than in America.

MECHANICAL IMPROVEMENTS. Anon. *Textile World 95,* No. 1, 130, 132, 134, 136 (Jan. 1945). Illustrated descriptions of a brass guard for slasher rolls to prevent yarn from running off the end of the roll and keep the roll from touching the bottom of the slasher box; a shuttle stop pin to keep looms from banging off; a harness stop motion for looms with electrically operated drop wires; an improved bale rack; a wiper made from tire tread for wiping the contact side of the drive belt on a card; roller selvage beams for maintaining uniform tension; old bobbins reclaimed for use on shuttle changers; homemade containers for textile crayon; a method of reclaiming shuttle spindles by grinding at the base; a repair device for warper creels and the use of sash cord to replace the cloth fastening stick on piece rollers.

TREATED WOODS. Anon. *Textile Recorder 61,* No. 741, 64, 42 (Dec. 1944). Resin impregnated and resin bonded wood products are of interest to textile engineers because they are comparable to steel in strength but weigh only about one sixth as much. They offer promise of long wear and good performance for picker stick shuttles, friction rolls, pulleys and bearings for heavy loads.

XIII, 4. Materials handling and transport

MATERIALS HANDLING. Henry Miedendorp, Jr. *Rayon Textile Monthly 25,* 635-6 (Dec. 1944). A production flow chart is highly important to proper planning of a production layout in a textile mill. Pin boards for bobbins and spools save much damage as compared with handling and stacking. Overhead conveyors greatly improve efficiency. Utmost utilization of gravity in materials, conveying is a principle which is too often neglected.

TIRE CORD PLANT. Anon. *Textile World 95,* No. 1 76-8 (Jan. 1945). The new rayon tire cord plant of U. S. Rubber Co. at Scottsville makes a closer approach to straight line production than other textile mills. Beams are delivered automatically to twisters; looms are arranged in a double row with cloth rolls on the inside alley where a bridge conveyor can pick up the cloth from any loom on either side.

XIII, 5. Lighting

MILL LIGHTING. Anon. *Electrician 133,* 390 (Nov. 3, 1944). The Cotton Board in Manchester (England), through its Recruitment and Training Dept., maintains a color and lighting exhibit on one floor of an old warehouse. Pastel shades of blue, red, green, gray and yellow are used to paint machine parts for easy observation, and 5' (80 watt) fluorescent lamps in overhead reflector fixtures are used to light machines. Even Jacquard looms are lighted so that each thread and eye is clearly visible.

MILL LIGHTING. J. Ehrlich, *Textile Mfr. 70,* 518 (Dec. 1944). In an effort to provide adequate loom lighting without undue cost and without strain on operators' eyes a system of individual lights at the high level in one installation 720 looms were lighted by 1080 small (15 watt) lamps so that current consumption was only about 16 kwh. For dark or black warps the lamps should be 20 or 25 instead of 15 watts.

MILL LIGHTING. T. A. Gooch, Metropolitan-Vickers Electrical Co. *Textile Weekly 34,* 1054, 1058, 1096, 1098, 1100 (Dec. 22 & 29, 1944); *35,* 26, 28; discussion 30 (Jan. 5, 1945). Correct distribution of lights is even more important than correct intensity. With this in mind and with due attention to the physiological aspects of adequate lighting the proper use of artificial light in textile mills is discussed.

XIII, 6. Atmospheric control

AIR CONDITIONING. F. Wright, Sturte-

vant Engineering Co., Ltd. *Textile Weekly 34,* 994, 996, 998 (Dec. 15, 1944). Recirculation of part of the air in an air conditioning installation is common practice for the sake of economy. If conditioned air from cardrooms is recirculated the dust and fly carried off with the extracted air must be filtered out. In an air conditioning installation designed especially for a textile mill the air is cleaned in 3 stages; the first is a fly interceptor to remove fiber, the second is a high efficiency dust filter and the final stage is a scrubber from which the clean air returns to the cardroom.

XIII, 7. Process control; control instruments

COUNTER. Jesse L. Michaelson (to General Electric Co.). USP 2 367 958, Jan. 23. A photoelectric device for detecting and counting broken filaments in a moving thread is focused on the thread at a point between the spinneret and the reel in such a way that a magnified image of each broken filament actuates the photoelectric cell.

XIII, 8. Water supply

WATER SOFTENER. Charles D. Townsend. *Textile Age 8,* No. 12, 74, 76 (Dec. 1944). Soft water and proper filtration practice will reduce the consumption of chemicals and dyes in textile manufacture and finishing. The Zeolite method may be effectively employed in softening water for textile mills.

WATER TREATMENT. Eskel Nordell, Permutit Co. *Rayon Textile Monthly 25,* 632-3 (Dec. 1944). Water for dye house operations, such as for silk and rayons, must be soft since numerous dyes and textile chemicals are sensitive to hardness in water. Iron and manganese are particularly troublesome in water supplies and must be removed if present.

XIV. TEXTILE RESEARCH

RESEARCH IN INDIA. Anon. *Indian Textile J. 54,* 425-6 (Aug. 1944). Under the Cotton Textiles Fund Ordinance of 1944 and the Cloth and Yarn (Export Control) Order of 1944 textile research in India will be subsidized in part by a 3% export duty on cloth and yarn manufactured in India. The Central Government of India is directed by the Ordinance to establish a Cotton Textiles Fund and to administer this fund through a Cotton Textiles Fund Committee. The relation of this committee to the Textile Control Board is not clear.

TEXTILE DEVELOPMENTS. Gustavus J. Esselen, Gustavus J. Esselen, Inc. *Rayon Textile Monthly 25,* No. 12, 598-600 (Dec. 1944). A lecture on progress in textile technology as related to the exercise of engineering and mechanical ingenuity, the intelligent utilization of advances in related and even in seemingly foreign fields, and research conducted directly by and for the industry.

TEXTILE PROGRESS. Allen Draper, Richard Haworth and Co., Ltd. *Textile Weekly, 34,* 952, 955-6 (Dec. 8, 1944). Possibilities for future developments include the use of plant growth stimulants such as colchicine to increase the staple length of cotton; cleaning cotton before baling; faster, quieter machinery with high draft and larger cans in the card room and increasing use of automatic devices on textile machinery.

TEXTILE RESEARCH. C. E. Coke, RCAF. *Can. Textile J. 61,* No. 26, 34-6, 45 (Dec. 29, 1944). Research by the Subcommittee on Protective Clothing of the RCAF has included physical and physiological studies of requirements for protective clothing to be worn by ground crews and by Marine and Air crews. The outer coverall fabric, the middle insulating layer and the inner lining of a winter flying suit are described.

Boxwood, former home of W. Alonzo Rinehart, is centered in the plan for the Institute of Textile Technology's front group. The residence (administration building) will be symmetrically flanked by the library on the west and the lecture hall on the east.

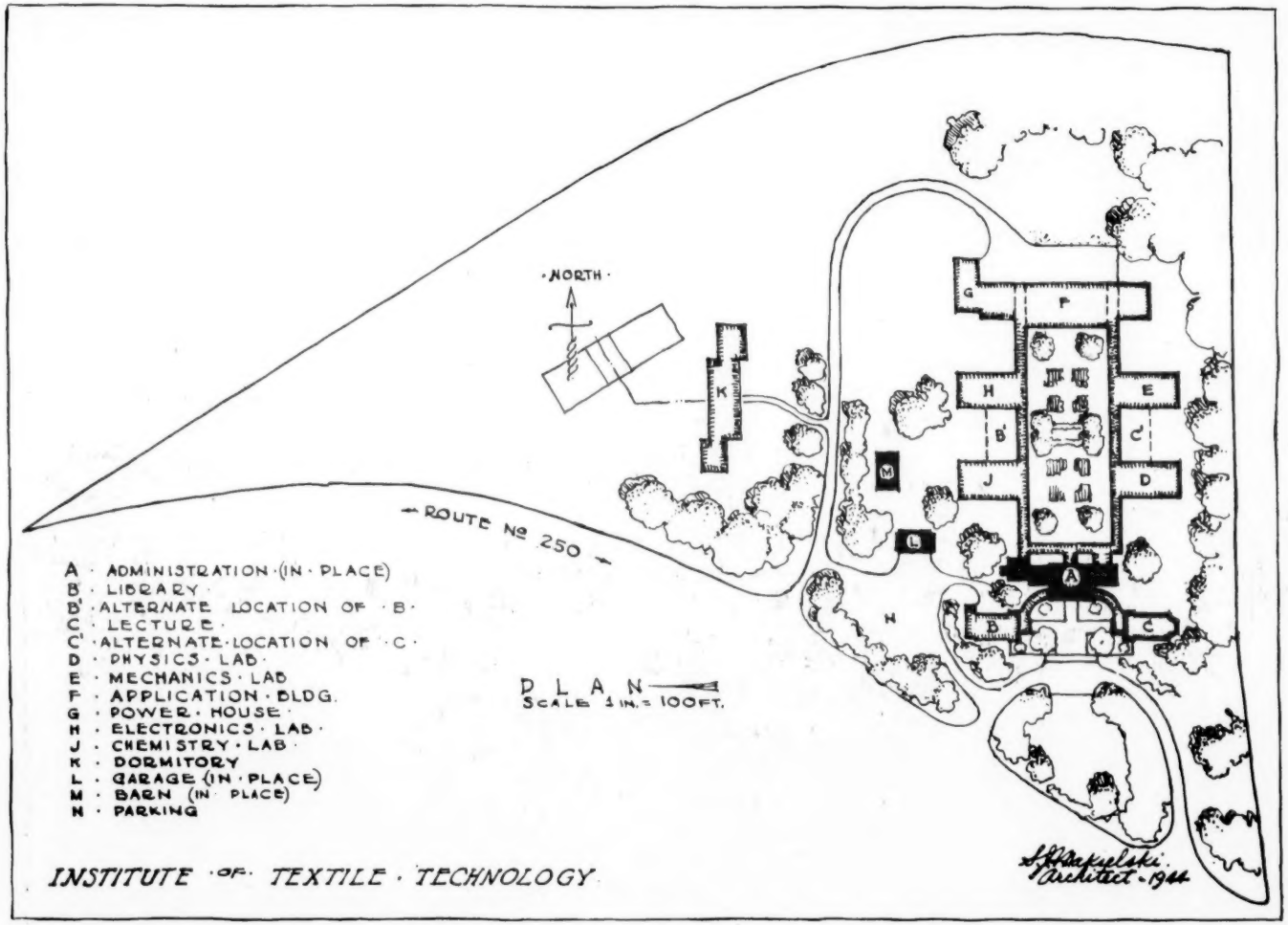
NORTH
ROUTE Nº 250
A · ADMINISTRATION (IN PLACE)
B · LIBRARY
B' · ALTERNATE LOCATION OF B
C · LECTURE
C' · ALTERNATE LOCATION OF C
D · PHYSICS LAB
E · MECHANICS LAB
F · APPLICATION BLDG.
G · POWER HOUSE
H · ELECTRONICS LAB
J · CHEMISTRY LAB
K · DORMITORY
L · GARAGE (IN PLACE)
M · BARN (IN PLACE)
N · PARKING
PLAN
SCALE 1 IN. = 100 FT.
INSTITUTE OF TEXTILE TECHNOLOGY
S. F. Stapelski Architect 1944

Chart of the Institute of Textile Technology building program authorized by the board of trustees at its February meeting. Construction will proceed as rapidly as conditions permit. Erection of the first building is to begin as soon as detailed plans can be drawn. It will house all of the scientific work until additional quarters can be provided. The gardens, long famous locally, will be preserved much as the terraced lawn of the University of Virginia serves as the centerpiece for the original university buildings.